CLASSIFIED ADVERTISING

RATES: Fifty words or less, one insertion, $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Air Conditioning and Refrigeration News, 5229 Cass Ave., Detroit, Mich.

POSITIONS AVAILABLE

ENGINEER—Expert designer of small refrigeration control specialties. Must have several years' experience with successful company. Unusual opportunity to become connected with medium-sized, well established company making very rapid progress. Location near Chicago. Box 956, Air Conditioning and Refrigeration News.

POSITIONS WANTED

AIR CONDITIONING and refrigeration engineer, 13 years' experience, including design and installation of industrial, residence, and comfort conditioning systems and equipment, including fans; air washers; heat transfer surface; unit conditioners and heaters; fractional and small integral horsepower compressors both open and hermetic. Acquainted with sales methods. Graduate ME 1924. Box 953, Air Conditioning and Refrigeration News.

DISTRIBUTOR or Manufacturer: Are you in need of a man, college trained, experienced as a salesman, supervisor, sales manager, in commercial refrigeration, comfort cooling, display and store equipment? Experienced in sales promotion, advertising, estimating, and the hiring and training of salesmen. Will consider any location with financially sound organization. Box 954, Air Conditioning and Refrigeration News.

UTILITIES ENGINEERING Institute graduate (refrigeration and air conditioning) desires position in this line of work. Married, 27, and has car. Anxious to get into refrigeration or air conditioning immediately. Good character references. Will appreciate all inquiries. J. GLENN STEWART, 136 Nugen St., Newcomerstown, Ohio.

MAN, 32 years of age, graduate mechanical engineer specialized in refrigeration. Also specialized in refrigeration and lubrication, Masters Degree. Eleven years' experience with large manufacturer in research, production, and all phases of design covering small household hermetically sealed to large commercial compressors. At present employed but anxious to make new connection. Married. Protestant. Owns home but will go anywhere. Box 957, Air Conditioning and Refrigeration News.

BUSINESS OPPORTUNITY

REFRIGERATION SALES AND SERVICE business for sale. Eight years' continuous sales and service. A splendid opportunity for someone to make their home in Dallas, Texas. Will stand investigation. Box 958, Air Conditioning and Refrigeration News.

ELECTRIC REFRIGERATION and appliance sales and service shop about 40 miles north of Chicago in population center of 75,000, at less than cost of stock and shop equipment. Wonderful opportunity to get started with going business. Selling because of sickness and dissolving partnership. $1,500 handles all. Box 955, Air Conditioning and Refrigeration News.

FOR SALE—Established commercial refrigeration business. North Carolina town of 100,000 population. Good franchises, established service business. Doing approximately $50,000 yearly. Will sell complete or part interest. Includes real estate. Owner has other interests. Box 952, Air Conditioning and Refrigeration News.

FRANCHISE WANTED

EXCLUSIVE DISTRIBUTOR of commercial comfort cooling and industrial refrigeration, for Carrier Corporation, in Detroit area, wants allied lines such as unit heaters, etc., for winter sales. Can pay cash and finance own sales. Must be reliable established concerns. Box 959, Air Conditioning and Refrigeration News.

FRANCHISES AVAILABLE

DISTRIBUTORS WANTED for newly developed, self-contained Midget display refrigerator. All nationally advertised parts including Copeland twin-cylinder compressor. Well insulated; porcelain exterior and interior; three shelves. Size 36" wide, 4'4" high, 28" deep. Easy to sell wherever food is purveyed. Only case listed for less than $300. Good discount to distributors. Write for literature. CONTINENTAL FOOD STORES EQUIPMENT CORPN., 2697 Third Ave., Bronx, N. Y.

ARCOIL OIL BURNER distributors and dealers wanted for our 1937 model burners and boiler burner units. New low prices. Neat, compact, sturdy in design. Operates with the heavier fuel oils which contain more heat units. Write for literature and territory open in your locality. NATIONAL ARCOIL CORP., Newark, N. J.

REPAIR SERVICE

DOMESTIC REFRIGERATION controls repaired. Ranco pencil types, $1.75. General Electric, Cutler-Hammer, Tag, Penn, Ranco box types, $2.00. Bishop Babcock, Majestic, Penn magnetic switches, $2.50. Each control individually calibrated to factory specifications. UNITED SPEEDOMETER REPAIR CO., INC., 436 West 57th St., New York City.

PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

Frigidaire's Expenditure of $425,255 Is High For Magazines in First 6 Months

Frigidaire

Frigidaire Corp.

The American Weekly	$ 90,000
Saturday Evening Post	68,400
Collier's	41,100
Woman's Home Companion	31,681
McCall's	30,780
Liberty	26,520
Good Housekeeping	24,990
Cosmopolitan	18,460
True Story	12,650
Household	12,540
Better Homes & Gardens	11,610
American	11,430
Life-Time, Inc.	10,350
Time	10,054
National Geographic	9,750
Holland's	5,400
Graduate Group	4,950
American Home	4,590
Total	**$425,255**

Westinghouse

Westinghouse Electric & Mfg. Co.

The American Weekly	$108,000
Saturday Evening Post	72,450
Collier's	51,240
Ladies' Home Journal	25,000
McCall's	21,020
Good Housekeeping	18,900
American	14,000
Cosmopolitan	14,000
American Home	9,600
Forbes	800
Total	**$335,010**

Electrolux (Gas)

Electrolux, Inc.

The American Weekly	$ 72,000
Saturday Evening Post	72,000
Collier's	42,000
Liberty	30,100
Good Housekeeping	18,900
True Story	14,850
American	13,500
Better Homes & Gardens	12,150
Time	10,875
American Home	10,200
Sunset	1,000
Total	**$297,575**

General Electric

General Electric Company

Saturday Evening Post	$105,800
Collier's	57,420
Ladies' Home Journal	39,675
Good Housekeeping	20,796
American	20,350
American Home	15,840
Better Homes & Gardens	14,940
House Beautiful	7,200
House & Garden	7,020
Holland's	3,600
Sunset	1,100
Total	**$293,735**

Norge

Norge Corp. (Div. of Borg-Warner)

The American Weekly	$214,000
Saturday Evening Post	32,000
Good Housekeeping	25,200
Total	**$271,200**

Kelvinator

Kelvinator Corp.

The American Weekly	$ 38,857
Saturday Evening Post	36,800
Woman's Home Companion	27,225
True Story	21,800
Collier's	19,800
Liberty	14,190
Life-Time, Inc.	13,800
American	9,900
Holland's	6,600
Graduate Group	6,000
Total	**$194,972**

Crosley

Crosley Radio Corp.

The American Weekly	$ 20,736
Saturday Evening Post	14,956
McCall's	12,260
Time	11,100
Good Housekeeping	10,526
Liberty	8,952
Collier's	3,330
Ladies' Home Journal	3,240
True Story	2,850
Woman's Home Companion	2,811
Cosmopolitan	2,538
Pictorial Review	2,430
American	2,376
Life-Time, Inc.	2,150
Fawcett Women's Group	2,139
National Geographic	2,100
Better Homes & Gardens	2,052
Household	1,890
Literary Digest	1,620
Modern Magazine	1,592
New Yorker	1,509
Woman's World	1,404
Red Book	1,296
American Home	1,188
Esquire	951
Parents'	951
Vogue	940
Harper's Bazaar	900
News-Week	865
Home Arts Needlecraft	864
McFadden Women's Group	713
Popular Mechanics	675
House Beautiful	624
House & Garden	600
Photoplay	597
Popular Science	594
Detective Group	552
Fortune	525
Delineator	375
Christian Herald	357
National Parent Teacher	324
Stage	320
Town & Country	252
Country Life	236
Junior League	212
Spur	176
Arts & Decoration	150
Scientific American	150
Total	**$124,948**

Leonard

Leonard Refrigerator Corp.

Saturday Evening Post	$ 23,500
Collier's	14,700
True Story	11,950
Liberty	7,170
Total	**$ 57,320**

Hotpoint

Edison General Electric Appliance Co., Inc.

Saturday Evening Post	$ 36,500
Collier's	20,400
Total	**$ 56,900**

Fairbanks-Morse

Fairbanks-Morse & Co.

Saturday Evening Post	$ 20,000
Good Housekeeping	12,600
Collier's	9,000
Total	**$ 41,600**

Universal

Landers, Frary & Clark

Saturday Evening Post	$ 8,000

Copeland

Copeland Products, Inc.

Saturday Evening Post	$ 4,000

Sparton

Sparks-Withington Co.

Good Housekeeping	$ 1,076

Magazine Expenditures Increase This Year

(Concluded from Page 1, Column 2)

Servel, Inc. (Electrolux manufacturer) gained third place with a $297,575 expenditure; fourth was General Electric with $293,735; Norge Corp. spending $271,200, was fifth; and Kelvinator sixth, with $194,972.

Crosley Radio Corp., whose total advertising appropriation on major appliances for the six-month period was $124,948, led all other manufacturers in spreading its copy in the greatest number of publications, using 48 popular magazines.

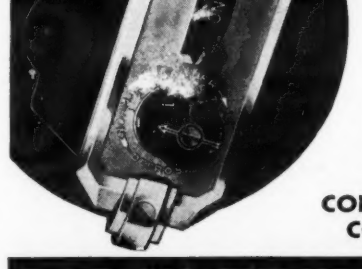
Amounts which leading manufacturers spent on national magazine advertising during the corresponding period of 1936 are as follows: Frigidaire, $322,850; Westinghouse, $189,250; Servel, $216,975; General Electric, $247,949; Norge Corp., $88,050; Kelvinator, $437,723; and Crosley, $125,234.

Kelvinator Launches Heating Drive

DETROIT — Presenting complete merchandising plans in advance of the active selling season, Kelvinator is launching its automatic heating drive in August as four factory executives take the 1937 line and its promotion program to distributors in 10 eastern and central cities.

Advertising and sales promotion budgets for the fall program are the largest which Kelvinator has ever appropriated for automatic heating.

Kelvinator executives who will conduct the distributor meeting are: E. L. Sylvester, sales manager of residential air-conditioning and automatic heating; B. M. Hanley, assistant sales manager in charge of automatic heating; F. J. Worden, commercial advertising manager; and F. Valtiere, of Kelvinator's engineering department.



TAG Snapon Controls FOR REPLACEMENT profits

TAG Snapon Controls with overload protection provide the essential element of dependability that you need in the profitable servicing of Domestic Refrigerators, Water Coolers and Beverage Coolers. Once adjusted, they permanently retain their temperature setting. Once set, the mechanism is locked against creeping. Send for your FREE copy of the TAG Catalog No. 1136-25 which describes these profit making Controls and other Test Equipment for Refrigerator Service.

CONSULT YOUR JOBBER ABOUT TAG CONTROLS AND TEST EQUIPMENT

C. J. TAGLIABUE MFG. CO. 550 PARK-AVE-BKLYN-N-Y

FORSLUND BUILDING
FORSLUND PUMP & MACHINERY COMPANY
WHOLESALE SUPPLIES FOR
PUMPING MACHINERY
AIR CONDITIONING • REFRIGERATION • HEATING
WATER SYSTEMS
AIR-CONDITIONING • REFRIGERATION
HEATING • WATER SYSTEMS • PUMPS
1717 FORSLUND PUMP & MACHINERY CO.
1719 FORSLUND PUMP & MACHINERY CO.

"A-P Products are 100% with us. They stay sold, are free from service, and we have found in selling them the past six years, that performance has not been compromised by price.

Yours very truly,
Forslund Pump & Machinery Co.

Go to Your Jobber For Your AP Controls

From the first indication of the booming impetus air conditioning was receiving everywhere, A-P engineers realized that products of lesser quality would enter the field. They tripled their vigilance over the quality of their controls. Their reason was selfish. They did not want any A-P control to be even a partial cause of any unsatisfactory installation performance.

To this end, they studied every trouble causing feature of every Solenoid and Expansion Valve — and eliminated them in A-P Solenoids and Expansion Valves.

As a result A-P Controls are dependable performers. Engineers recommend them with confidence on new installations. Service men use them with confidence as replacements.

A-P Solenoids and Expansion Valves are precision built of materials tested daily for possible flaw. It is no idle boast that A-P Controls can be installed and forgotten.

Progressive Jobbers Everywhere Stock A-P Controls! . . . .

AUTOMATIC PRODUCTS COMPANY
2450 NORTH THIRTY — SECOND STREET
MILWAUKEE WISCONSIN

PERIODICAL BIOLOGY TECHNOLOGY DEPT
First Copy
PUBLIC LIBRARY
AUG 12 1937
DETROIT

THE NEWSPAPER OF THE INDUSTRY

AIR CONDITIONING AND

WRITTEN TO BE READ ON ARRIVAL

REFRIGERATION NEWS

Trade Mark Registered U. S. Patent Office. Established 1926 as Electric Refrigeration News
Member Audit Bureau of Circulations. Member Associated Business Papers.

VOL. 21, NO. 15, SERIAL NO. 438
ISSUED EVERY WEDNESDAY

Entered as second-class matter Aug. 1, 1927

DETROIT, MICHIGAN, AUGUST 11, 1937

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FOUR DOLLARS PER YEAR
TWENTY CENTS PER COPY

Norge Adds Line Of Utility and Display Cases

4 Models in Utility Series; Case Made in 7-ft. Length Only

DETROIT—Four utility refrigerators and a 7-foot refrigerated display case have been added by Norge division, Borg-Warner Corp., to its line of commercial refrigeration equipment.

With the introduction of this equipment, Norge's commercial division, under the direction of W. C. Rowles, has expanded to the point where production is at the highest level in the company's history, officials report.

The four new utility refrigerator models and respective net capacities are: U-267, 26 cu. ft.; UC-227, 22 cu. ft.; U-447, 44 cu. ft.; and UC-387, 38 cu. ft.

Condensing units in the two smaller models are of the ¼-hp. Rollator type, and are placed in the [bo]om of the cabinet. Model UC-387 [e]quipped with a ⅓-hp. heavy-duty [R]ollator compressor, model U-447 with a ⅓-hp. normal-duty machine.

Both UC models are equipped for ice-making in addition to the regular function of refrigerating food,

(Concluded on Page 24, Column 4)

Electrolux Regional Men Report New All-Time Sales Marks

EVANSVILLE — Executives and regional salesmanagers of the Electrolux division, Servel, Inc., who attended a four-day staff conference here r cently, reported sales in all divisions to be the best in the company's history.

Sales of kerosene-operated Electrolux in rural areas are showing special gains, according to George S. Jones, Jr., vice president and sales manager.

Executives attending the conference were: F. E. Sellman, vice president; Dr. W. R. Hainsworth, vice president in charge of engineering; William Reynolds, advertising manager, and H. S. Boyle, sales promotion manager, all of New York;

(Concluded on Page 2, Column 1)

Former Detroit Lubricator Chairman Dies

DETROIT—Charles H. Hodges, formerly chairman of the board of the Detroit Lubricator Co., and one of the organizers of the American Radiator Co., died in the Massachusetts General Hospital, Boston, Aug. 7, after a month's illness.

Mr. Hodges, who was 78 years old at the time of his death, was long active in Detroit industry. He was graduated from the University of Michigan in 1882, and, with his father, participated in the founding of the Detroit Radiator Co. When later the company merged with others to form the American Radiator Co., Mr. Hodges became treasurer and member of the executive committee of the new organization. He became vice president in 1906.

The following year Mr. Hodges was elected president of the Detroit Lubricator Co., and in 1926, was made chairman of the board of this organization.

He was at various times director of the American Blower Co., of The Detroit Trust Co., the Detroit branch of the Federal Reserve Bank, and of the Manufacturers National Bank.

Surviving Mr. Hodges are two sons, Wetmore and Charles H. Hodges, Jr., a brother, Frederick W. Hodges, and two sisters, Clara and Virginia.

23 Radio Models in Stewart-Warner's 1938 Line

CHICAGO—Stewart-Warner Corp. was host to 367 members of its radio distributing and sales organization at a convention here last week to introduce the 1938 line of Stewart-Warner radio receiving sets, chief feature of which is the new "magic keyboard" automatic tuning device.

Among the conventioneers who gathered at the Edgewater Beach hotel were 58 Stewart-Warner distributors, their salesmanagers, salesmen, and a numb r of dealers.

The 1938 Stewart-Warner radio line contains 23 all-electric models (20 AC, and three [ ]DC) and six battery sets, and [ ]ludes 10 table sets, 10 consoles, and three arm-chair models.

Outstanding feature, the "magic keyboard" installed on three of the console models, is an automatic device which, it is claimed, tunes the set to the desired station, directly and instantly, with full tone and volume control, by pressing any one

(Concluded on Page 2, Column 3)

Air Conditioning Will Keep These Cows Contented

FREMONT, Neb.—To insure "milk from contented cows," Dan V. Stephens, local farmer, has had a 4-ton air-conditioning unit installed in the dairy barn at the Cottonwoods, his country home. Summer temperatures of 100° F. are common in this territory.

ACMA Sales in June Total $10,666,037

WASHINGTON, D. C. — Members of Air Conditioning Manufacturers Association broke all monthly records but one in their history in June, when installed cost of equipment sold by them totaled $10,666,037—an increase of 59.8% over the June, 1936 dollar sales volume of $6,673,990, reports William B. Henderson, executive vice president of the organization.

June sales far surpassed those made during May when ACMA members sold $8,820,059 worth of installed equipment.

March sales of slightly more than $17,000,000 marked the only other month exceeding $10,000,000. The continuing volume on room cooler and small summer comfort installations brought the total for the first half of the year to $60,797,397 on that equipment. This amount is 20% greater than the total for the whole of 1936.

Trippensee Co. Enters Refrigeration Field

DETROIT—Trippensee Mfg. Co., former producer of automobile bodies, has been reorganized to enter the refrigeration field with a line of compressors, beer and water coolers, and portable humidifier and air conditioners, according to Frank J. Trippensee, president and general manager.

Stock issues of the company have just been approved by the Securities and Exchange Commission, Mr. Trippensee said, and production probably will get under way within the next 60 days.

The company is composed of the Trippensee division, and Standard Reamer & Tool Co. division. The Trippensee division will handle all refrigeration and air-conditioning manufacture; Standard Reamer & Tool will continue its business of making tools for various industries. Operations of both divisions, however, will be carried on from the

(Concluded on Page 13, Column 2)

9,247 Electrolux Units Sold in N.Y. Campaign

7,840 Sales Replace Ice Boxes; Grills, Fans Are Premiums

NEW YORK CITY—Surpassing the 5,000 unit quota set in the national campaign featuring choice of either an electric roaster grill or kitchen ventilating fan free with each Electrolux gas refrigerator, Consolidated Edison Co., of New York, Inc., Westchester Lighting Co., and cooperating dealers, sold 9,247 refrigerators with which 6,564 grills and 2,470 fans were chosen, during June and July.

Of the gas refrigerators sold, 7,840 replaced ice boxes. Sales of gas refrigerators in the territory during the corresponding period of 1936 totaled 3,182.

A breakdown of the campaign sales total, shows 5,504 refrigerator sales in Consolidated's Manhattan territory, 2,708 in the Bronx, and 636 in

(Concluded on Page 2, Column 2)

World Household Sales Set New June Record

DETROIT—All previous records for world manufacturer-distributor sales of household electric refrigerators for the month of June were broken this year, according to estimates by AIR CONDITIONING AND REFRIGERATION NEWS which place this year's June sales at 286,300 units, a 12% increase over the previous June record (established last year) of 253,600 units.

Capping a series of record-smashing months, June sales this year pushed the six-month sales total to a new peak of 1,839,500 units (according to revised estimates by the NEWS), marking the first time in the industry's history that manufacturers have sold more than one and

(Concluded on Page 8, Column 5)

Crosley Will Enter Gas Range Field This Fall

CINCINNATI — Crosley Radio Corp. will enter the gas range business early this fall with a full line of kitchen ranges, Thomas W. Berger, general sales manager, announced last week.

Contracts have been let for the manufacture of dies, tools, and equipment for the six models which will comprise the line. The prices of the ranges will be from $69 to $149, Mr. Berger said.

Plans provide for an adequate production of all models to meet the fall demand, it was also stated.

R. J. O'Connor will be in charge of the range division of the company.

Portable Room Cooler Marketed by Norge

DETROIT—Designed for use in homes or private offices, a portable air-conditioning unit powered with Rollator compressor has just been introduced by Norge division, Borg-Warner Corp.

Ordinary room air is continually drawn into the self-contained, evaporative type conditioner by a 6½-

(Concluded on Page 24, Column 3)

Buffalo Distributor Utilizes Social Security Idea

BUFFALO, N. Y. — Capitalizing on the publicity accorded the social security act, Ontario Electric .Corp., Crosley distributor, had dealer invitations to its Shelvador "open house" printed in imitation of social security cards.

The inscription on the cards read: "Refrigeration Security—a Crosley dealer franchise 0-2-40-5-U (ought to forti-fi you) against competition." The figures were printed in red ink to represent social security account numbers.

The Washer Comes Into the Kitchen

A day in the basement is no longer required of housewives who do their own laundry. The new Bendix home laundry shown above takes its place as an attractive piece of kitchen equipment. Cabinet has been designed to provide an auxiliary table top, matching the height of the average kitchen workboards. Soiled clothes are placed in the machine through the glass covered port in the front. Two controls are set; one selects the proper water temperature for soaking and washing and rinsing in accordance with the type of fabric to be washed, the other operates the time of soaking and washing. The machine then goes through an entire washing, rinsing, and damp drying cycle automatically.

D. Eddins Heads Airtemp; Radial Unit Introduced

Downey Goes on Leave; Bogan and Hawkins Get New Posts

DAYTON—Dan Eddins, president of Plymouth Motor Corp., division of Chrysler Corp., has been appointed acting president of Airtemp, Inc., Chrysler air-conditioning subsidiary.

Mr. Eddins has taken over the duties of A. C. Downey, Airtemp president, who has been granted indefinite leave of absence because of poor health. Mr. Eddins, however, will not relinquish his post at Plymouth.

B. W. Bogan, engineer in the Chrysler air-conditioning laboratory at Detroit, has been placed in charge of Airtemp's laboratories here, replacing J. M. Gruitch, who has been named head of Airtemp's service department. W. M. Hawkins, also of Chrysler's Detroit laboratory, has been appointed liaison man between Airtemp's engineering and production departments.

High-Speed Radial Machines in Production

DAYTON—The Airtemp Division of Chrysler Motors has announced that it is in production on its new line of high-speed radial Freon-12 compressors for use in air-conditioning service.

Principal feature of this compressor is the radial arrangement of its cylinders which suggests the appearance of the radial airplane engine, although the appearance of similarity is destroyed somewhat because of the offset or staggered cylinder arrangement resulting from the double-throw crankshaft which is used instead of the single throw shaft with "master" connecting rod, long conventional with aeronautical designers.

Well known are the advantages in aeronautical work of the radial engine resulting from its shorter length and lighter weight, both of which are very important in flying where every inch and pound count for so much, and from the fact that its row of cylinders can be presented broadside to the air stream so that each cylinder receives an unobstructed blast of air from the propel-

(Concluded on Page 24, Column 1)

Topeka 'Refrigerator Club' Investigated By Local Police

TOPEKA, Kans.—Investigation of a "refrigerator club," operating on the chain letter principle here, to determine whether it violates the state anti-lottery law, is being conducted by attorney general Clarence V. Beck.

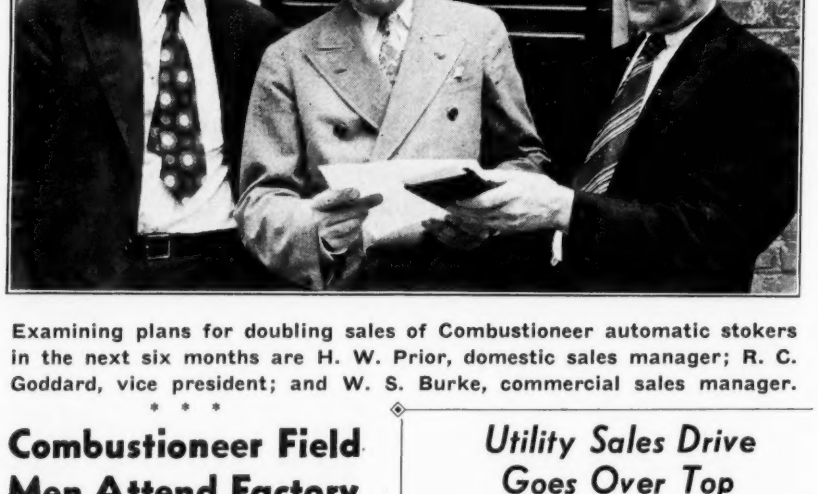
Members joining the "club," according to Beck, pay 85 cents, receive a coupon book which entitles them to discounts with local merchants, and are registered on a list at the club headquarters.

Each member must agree to get two others to join the club, and when a member's name reaches fourth place in the registration, he pays $1 to the person listed above him. When his name reaches top position, the club promises to deliver a $128 refrigerator, or pay the cash equivalent.

Forms used by the promoters specify that "applications or payments are not accepted by mail."

As far as investigators have determined, no refrigerator manufacturer, jobber, or dealer is aiding in the promotion of the plan, the attorney general stated.

Getting Set for the Heating Season



Examining plans for doubling sales of Combustioneer automatic stokers in the next six months are H. W. Prior, domestic sales manager; R. C. Goddard, vice president; and W. S. Burke, commercial sales manager.

* * *

Combustioneer Field Men Attend Factory Sales Convention

SPRINGFIELD, Ohio—A two-day sales convention for Combustioneer district representatives was held at the plant here recently.

H. W. Prior, domestic sales manager, presided at the meeting at which fall advertising and sales plans were outlined. R. C. Goddard, vice president of Combustioneer, and president of the Stoker Manufacturers Association, and W. S. Burke, commercial sales manager, were speakers at the opening session.

A. O. Day, chief engineer, presented the complete domestic and commercial Combustioneer lines to the salesmen. The fall advertising and sales program was dramatized by regional sales managers, J. L. Coffield, Jr., G. K. Filiatrault, Norman Burnett, A. E. Mills, and T. R. Allen.

Electrolux Holds Sales Meeting at Evansville

(Concluded from Page 1, Column 1)

George L. Roach, assistant to the president; N. I. Townsend, secretary-treasurer; Dr. R. S. Taylor, chief engineer, and Mr. Jones, of Evansville.

Regional sales managers who attended included: B. O. Brown, New York; Roderick Peters, Washington, D. C.; Gordon Bloom, manager, and R. R. Guenther, assistant manager, Columbus, Ohio; C. A. Miller, Oakland, Calif.; Seward Abbott, Dallas, Tex.; and B. C. Bon Seigneur, Omaha.

Utility Sales Drive Goes Over Top

(Concluded from Page 1, Column 3)

Queens. Westchester accounted for 399 sales. Of these 8,410 were wholesale sales, 602 retail, and 235 sales made by dealers.

For being winners in the district in the 10 anniversary Electrolux drive extending from April through June, the Consolidated Edison Co.'s sales department was presented last week with a $500 check and a 153-pound cake, awarded by the Refrigeration Committee of the American Gas Association, cooperating with the American Association of Gas Appliance and Equipment Manufacturers, and Servel, Inc.

The check, turned over to the St. John's Guild of New York, owners of the "floating hospital" which every year takes approximately 55,000 children for a day's sail, paid for outings Aug. 4 and 6, in which 2,800 children sailed to Sandy Hook and back.

During the national sales drive, Consolidated Edison salesmen were responsible for a 94% increase in gas refrigerator installations.

G-E, Westinghouse Get Government Orders

WASHINGTON, D. C. — Under terms of the Walsh-Healey public contracts act, local branches of both General Electric Supply Corp. and Westinghouse Electric & Mfg. Co. have been awarded contracts, valued at $76,309 and $32,956 respectively, to supply electric refrigerators to the procurement division of the U. S. Treasury Department.

'Magic Keyboard' Tuning Is Feature Of 1938 Stewart-Warner Radios

(Concluded from Page 1, Column 2)

of the 15 buttons representing stations in key cities.

Differing from other automatic tuning devices on the market, the "magic keyboard" is a mechanical device, operating by means of a series of cams.

Merchandised under a zone pricing system, the 1938 line has as an additional sales feature an "add-on" financing plan by which Stewart-Warner refrigerator owners can pay for a new S-W radio by having its price added to their existing refrigerator financing contract.

Orders booked at the two-day convention showed a 300% increase over those for 1936—in which year Stewart-Warner Corp. had the biggest radio sales volume in its history, according to John E. Ditzell, general appliance sales manager.

Among the Stewart-Warner executives who outlined plans for the expanded production, advertising, and sales program planned for this fall, were James S. Knowlson, chairman of the board, J. E. Otis, Jr., president, and F. A. Hiter, vice president in charge of sales.

F. R. Cross, advertising manager, announced that the Horace Heidt S-W national radio broadcast will again spearhead the concentrated 1938 radio sales drive, and outlined the distributor cooperative newspaper advertising campaign scheduled.

Dealer promotion material displayed at the meeting included an eight-page broadside announcing and describing the new models, cartoon postcards to invite dealers to the distributor's new-line showing, a spiral bound salesman's line folder, specification sheets, customer sales literature and direct mail pieces, and radio prospect gifts.

A nine-page newspaper make-up folder containing reprints of the series of advertising lay-outs available for distributor and dealer use, was shown also.

In outlining the company's 1938 radio sales campaign plans, Mr. Ditzell pointed out the vast market for replacement sales existing, and claimed that there are 6,000,000 console sets more than five years old in service in American homes at the present time.

F. A. Hiter, Stewart-Warner vice president, was principal speaker at the dinner held for the conventionites Wednesday evening.

Stewart-Warner's newspaper advertising will consistently call the public's attention to the new "magic keyboard." Typical of the layouts planned for the fall drive is a vertical half-page spread headed: "Amazing Radio Invention Ends Dialing Nuisance," and picturing the magic keyboard mechanism, the console model in which it is installed, and the following copy:

"Now you can enjoy all your radio favorites—and never touch a radio tuning knob—never fiddle and fuss to "clear up the tone." . . .

Foremost in the outdoor promotion material for Stewart-Warner distributors is a special model display coach, 16 feet 5 inches in length. Built with an all hardwood frame, the coach has sheet steel exterior panels finished in blue synthetic enamel, and a "Stewart-Warner Radios and Refrigerators" sign lettered in aluminum leaf outlined in red.

Interior of the coach is lined in antique-finish art leather, and the floor covering is inlaid linoleum.

A series of prospect gifts designed as advertising and sales-building aids are included in the fall promotional material for dealers and salesmen.

These include a three-color mechanical pencil, ladies' hand bag pencils, polygonal shape cigarette lighters, and six types of balloons in duck, mouse head, cat head, airship, and other shapes. Each gift is stamped with the Stewart-Warner name.

Polished nickel-silver chain key rings, each with a serial number and instructions to return to Stewart-Warner Corp., Chicago, printed on it, and with an attached tag on which the prospect writes his name and key number, and mails into the corporation to be registered, are among the other gifts.

Last of the premiums is a lipstick tissue folder, usable as an envelope enclosure, a gift at home economics lectures, women's club meetings, card parties, or as a "handout" at beauty parlors and knit shops.

The folder may also be used as a door opener in salesmen contact calls, and be given away at home, furniture, dress, and apparel exhibitions, fashion shows, theaters, movie houses, hotels, cafes, cocktail lounges, etc.

Boston Bureau Condemns Price Comparisons

BOSTON—Boston's Better Business Bureau has recommended that local appliance retailers discontinue the policy of using misleading price comparisons in refrigerator and washing machine advertising.

The bureau pointed out that price comparisons and saving claims can not be fairly based on size alone, as refrigerators or washers of the same size may differ in important features of construction and design.

Sales Tax Must Cover Trade-ins in Michigan

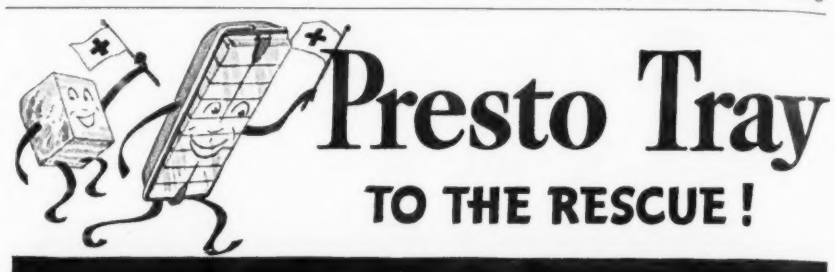
LANSING, Mich.—Attorney General Raymond W. Starr ruled here Monday that the general sales tax must be collected on the full sale price — including the allowance granted for trade-in—on merchandise sold on a trade-in basis.

Directed chiefly at automobile sales, the ruling is also applicable to refrigerators, radios, furniture, and other merchandise in which the seller takes property as part of the price.

The ruling reverses the July 1 decision of the State Board of Tax Administration to collect the sales tax only on that part of the price which the buyer pays or promises to pay in money.

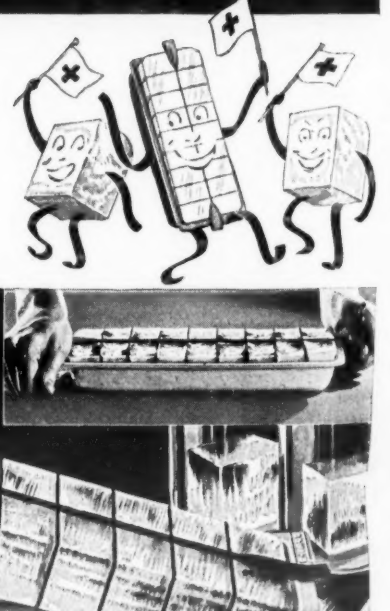
Servel Begins Construction On New Addition

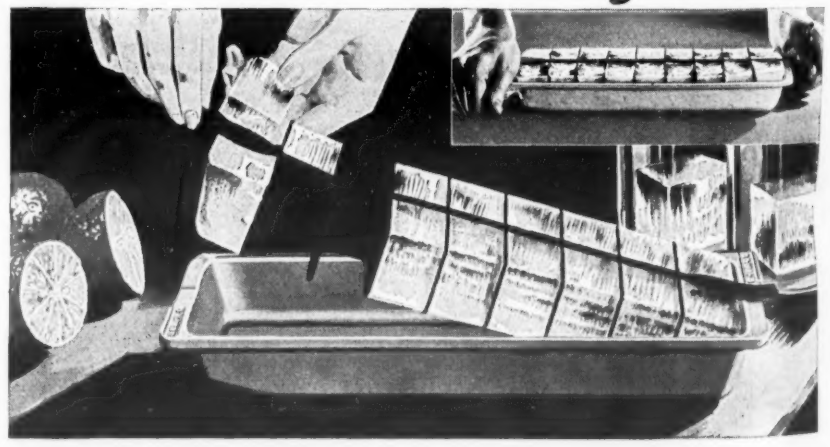
EVANSVILLE, Ind.—Servel, Inc., will begin construction immediately on a $40,000 second-story addition to its unit assembly division building.



Presto Tray
TO THE RESCUE!

To perk up a refrigerator demonstration just use the Magic Finish Patented* Contour Presto Tray. Then watch your prospects' eyes sparkle as you show how *only* Presto Tray has all the advantages of a fast freezing Magic Finish Metal Tray plus all the conveniences of a Rubber Grid.





FIRST CHOICE
of Refrigerator Salesmen

Refrigerator dealers and their salesmen have been quick to spot the sales-closing advantages of Presto Tray's 10-second demonstration. They show how it slips out of the ice compartment in a flash . . . how its magic finish does not stick or "freeze in" . . . how a slight pressure on its patented contour pops out a rubber gridful of ice cubes . . . instantly ready for use . . . one or a dozen . . . full-sized, cold and dry. And because prospective buyers are quick to appreciate the utter simplicity of Presto Tray's instant releasing and fast freezing, both the buyer and seller profit. That's the best reason we know why you should insist that your new refrigerators come factory equipped with Magic Finish Presto Trays.

INLAND MFG. DIVISION
General Motors Corporation, Dayton, Ohio

THE MAGIC FINISH PATENTED CONTOUR
Presto Tray
WITH RUBBER GRID
★
ICE CUBES IN 10 SECONDS
*Patent Pending

TWO ROADS to good Refrigeration

The ANSUL Twins

ANSUL CHEMICAL COMPANY
MARINETTE » » » » » WISCONSIN

America's Railroads Making Rapid Progress in Conditioning Trains & Terminals, Henderson Reports

WASHINGTON, D. C.—America's railroads are making rapid progress in air conditioning both their trains and their terminals, according to William B. Henderson, executive vice president of Air Conditioning Manufacturers' Association.

The first of 50 deluxe air-conditioned coaches being built by New York Central has been put into service on the Empire State express. Others soon will be operating on lines from New York to Chicago, Detroit, Cleveland, and Buffalo, Mr. Henderson reports.

Sixty air-conditioned coaches have just been put into service by the Pennsylvania railroad, he says, and similar equipment is being used in the North Coast Limited on Northern Pacific. Atlantic Coast lines have just inaugurated additional air-conditioned coach service between Jacksonville, Fla., and Cincinnati.

Sixty-one of the 80 all-steel air-conditioned coaches scheduled for use on Louisville & Nashville lines already have been completed. At the end of this year's air-conditioning program, which calls for a total expenditure of $800,000, L. & N. will possess 119 conditioned coaches and 16 conditioned diners.

Nashville, Chattanooga & St. Louis railway has just completed conditioning all its main line equipment. Central Vermont also has installed several new air-conditioned coaches. New Haven railroad has put 100 new air-conditioned coaches into service, and has 50 more on order.

Paul J. Neff, assistant vice president of Missouri Pacific, reports that all passenger cars of this line either already have been air conditioned or else are being equipped with conditioning apparatus at the present time.

The Lackawanna line is adding 20 conditioned coaches; Boston & Albany has added 17; Pittsburgh & Lake Erie has added eight. Milwaukee railway's Chicago-Green Bay-Iron Mountain division also has commenced an air-conditioning program.

The air-conditioning trend also seems to prevail in Canada, where Canadian National railways has purchased 50 new air-conditioned coaches, and Canadian Pacific is adding 141 air-conditioned passenger cars.

St. Louis' Union Station now has air-conditioned waiting rooms, ticket offices, lunch counters, and restaurants. Union Pacific recently awarded a contract for complete conditioning of its 12-story headquarters building at Omaha, at an estimated cost of more than $250,000.

Air Conditioning Commended In Report of National Resources Committee

WASHINGTON, D. C.—The 450,000-word report of the President's National Resources Committee on "Technological Trends and National Policy, Including the Social Implications of New Inventions," recently made public, accorded air-conditioning equipment prominent consideration among a list of modern inventions which may have considerable effect on national industrial growth in the future.

Other inventions listed included the mechanical cotton picker, the photo-electric cell, artificial cotton, synthetic rubber, prefabricated houses, television, tray agriculture, and gasoline produced from coal.

With reference to air conditioning the report said: "The air-conditioning developments which lower inside temperatures during hot weather may or may not within the next generation affect Southern cities and stimulate the growth of factories in warmer regions."

Controls Firm Moves Boston Office

BOSTON — To provide facilities for handling increased business, the branch office of the Minneapolis-Honeywell Regulator Co. here were recently moved to 797 Beacon St. Occupying the entire second floor of the building, the branch now has approximately 9,000 sq. ft. of floor space.

Minneapolis-Honeywell branch offices in Pittsburgh and Indianapolis have also been expanded. The Pittsburgh branch will hold open house to display its improved facilities at 26th and Sarah Streets to customers Aug. 6.

The Indianapolis district office at 1134 North Pennsylvania St. has been enlarged to provide separate quarters for general engineering, service, sales offices, and display rooms.

Williams Revises Retail Sales Tactics Book

BLOOMINGTON, Ill. — Williams Oil-O-Matic Heating Corp. has just prepared a revised and enlarged edition of its "10 Majors" booklet for retail salesman.

Seventh edition of the salesman's manual, the book contains 68 pages and has color illustrations of the leading types of heating units.

First 31 pages cover the fundamentals of automatic heating. Each of the 10 leading selling points for Williams Oil-O-Matic equipment is covered next, in terms which the salesman can use in his presentation.

Color photographs of a number of Oil-O-Matic models, with diagrams and descriptions, are also given. Heating capacities and data on Model K4.5, latest addition to the burner line, is included.

York Equipment Cools Peoria Hotel

PEORIA, Ill.—York air-conditioning equipment has been installed in Hotel Pere Marquette here under the direction of Earl McDonald.

Minneapolis-Honeywell Co. Sponsors Unusual Employe Vacation Trip Contest

MINNEAPOLIS—Windshield stickers labeled "Hello Honeywell" on the cars of employes of the Minneapolis-Honeywell Regulator Co. figured in the publicity contest in which cash prizes were awarded to employes meeting the greatest distance from Minneapolis while vacationing.

The stickers, with the words "Hello Honey" capitalized, were identification marks.

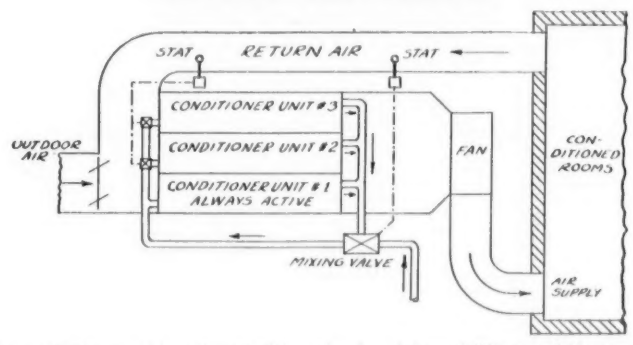
First prize was won by Medora Miller and Jean Whited who met in Los Angeles. Other employes who met in Portland, Ore. and in Salt Lake City also received prizes.

Canton Hardware Co. Equips Photographic Studio

CANTON, Ohio—York air conditioning has been installed in the Waltz photographic studio here by the Canton Hardware Co.

CONDENSERS
DOMESTIC EVAPORATORS
COMMERCIAL EVAPORATORS
AIR CONDITIONING SURFACE
McCORD
REFRIGERATION AND AIR CONDITIONING Products
BLAST HEATING SURFACE
COMFORT COOLERS
MARKET COOLERS
UNIT HEATERS
CATALOGUES ON REQUEST
McCORD RADIATOR & MFG. CO.
DETROIT, MICHIGAN

A SYSTEM WITH VARIABLE BY-PASSING AND VARIABLE CONDITIONING



IN this System (*) all outside air is dehumidified while treatment of return air depends upon the load.

The air is delivered to the room at a comfortable condition since the cold dehumidified outside air is tempered by the partially treated or untreated return air.

This system is ideal for use where it is desired to pass all air used through the conditioner while still maintaining close regulation by means of variable conditioning.

Any one of the thousands of our licensees' dealers, distributors or salesmen will gladly discuss the engineering features of this system with you. Many variations of this typical layout are possible.

This system is only one of many air conditioning systems (*) described in our booklets, copies of which are available from our licensees.

LICENSEES

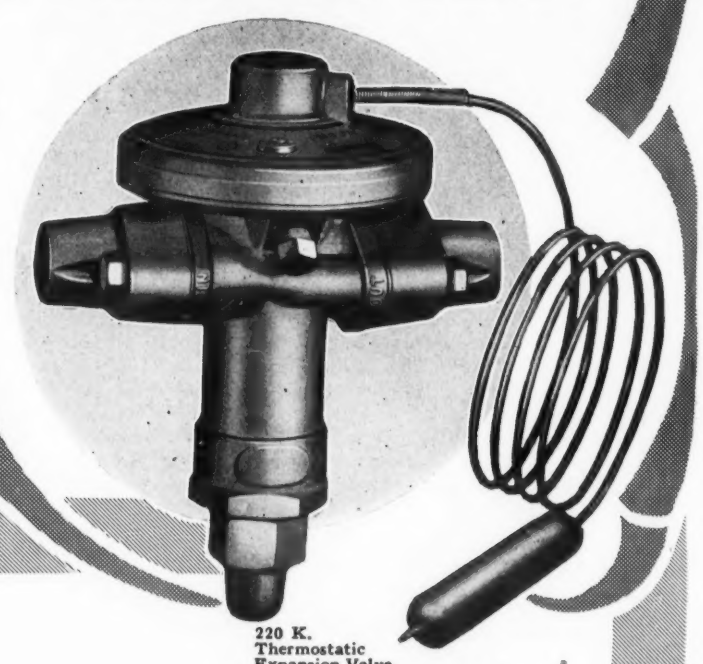
American Blower Co., Detroit, Mich.
Buffalo Forge Co., Buffalo, N. Y.
Carrier Corp., Newark, N. J.
Frick Co., Waynesboro, Pa.
General Electric Co., Schenectady, N. Y.
J. O. Ross Engineering Co., New York, N. Y.
The Cooling & Air Conditioning Corp., Division of B. F. Sturtevant Co., Hyde Park, Boston, Mass.
Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.
York Ice Machinery Corp., York, Pa.

(*) Auditorium Air Conditioning Systems are covered by many issued patents and pending applications.

AUDITORIUM CONDITIONING CORPORATION
New York Office — 17 EAST 42nd STREET

Another Triumph for A-P Expansion Valves..

Only 1.1° Superheat Variation in all performance tests - - on Waukesha Passenger Car Air Conditioning Units . .



220 K. Thermostatic Expansion Valve.

In April the Division of Equipment Research of the Association of American Railroads conducted extensive tests on the performance and cost of operation of Waukesha Railroad Passenger Car Air Conditioning Units.

In commenting on the Evaporator Performance during these tests, they said in their report:

"The regulation of the flow of the refrigerant through the expansion valve materially affects evaporator performance. As the refrigerant leaves the evaporator, it should, at all times, be slightly superheated. The degree of superheat should never be more than 15 degrees, otherwise a larger portion of the evaporator coil would be filled with superheated rather than saturated vapor. The superheat at the evaporator ranged from 4.0 to 5.1 degrees during all tests. This satisfactory refrigerant regulation was obtained by use of an Automatic Products Company Expansion Valve."

Again, a triumph for the care with which A-P Thermostatic Expansion Valves are built and designed. Due to the specially developed charge in the bulb, A-P Thermostatic Expansion Valves maintain uniform degrees of superheat regardless of pressure variations.

You can depend on an A-P Valve, for proper refrigerant control on all refrigeration and air conditioning installations. For full information regarding these valves, write for Bulletin A-408.

Progressive Jobbers Everywhere Stock A-P Contr.ls!

Waukesha Air Conditioning Unit—with AP Valves—on Chicago and Northwestern Railway Passenger Car.

AUTOMATIC PRODUCTS COMPANY
2450 NORTH THIRTY — SECOND STREET
MILWAUKEE WISCONSIN

SELLING AIR CONDITIONING

Value of Air Conditioning in Newspaper Offices and Press Rooms Described to Publishers by Carrier Engineer

CHICAGO—Contending that personnel is the most expensive equipment in any newspaper plant, Robert T. Williams, Carrier engineer, advised installation of complete air-conditioning systems as a solution for many problems of newspaper production in his talk before the 11th annual mechanical conference of American Newspaper Publishers Association here recently.

To back his contention that air conditioning is needed in the editorial and business offices of a paper as well as in the press room, Mr. Williams pointed to the familiar argument that comfortably air-conditioned surroundings improve the health, temperament, and efficiency of any employe.

OFFICE EFFICIENCY

"In the offices, the primary considerations are human comfort and efficiency," Mr. Williams said. "If there are a large number of small private offices, as there generally are, the question of individual control for each office must be given due consideration. Comfort is, to a certain extent, an individual matter, and controlling a large number of private offices from one control will make each office possibly too warm for some and too cool for others.

"In such general offices as city rooms, human comfort is again of primary consideration, together with draftless distribution; and special attention must be given to adequate fresh air supply, due to the high extent of smoking in such areas.

SPECIAL APPLICATIONS

"Other areas which may require special treatment are telephoto rooms, near which it is inadvisable to place moving machinery, as vibration must be cut down to a minimum; and broadcasting studios, where absence of noise is a very important factor.

"In the public spaces in a newspaper building, the installation of the system is made in such a way that it will not disfigure the architectural features which are usually a serious consideration."

Mr. Williams explained that it is impossible to select any temperature at which every individual feels comfortable, so it is necessary to select a mean point at which the majority of people will be comfortable.

"The temperature at which 98% of the people feel most comfortable in summer is about 71° F. wet bulb," he declared. "But as the dry-bulb temperature rises, the relative humidity must fall in order to maintain a corresponding feeling of comfort. At 75° F. dry bulb with a relative humidity of 50%, the same degree of comfort is experienced as at 79° F. dry bulb with a relative humidity of 30%."

PROCESS CONDITIONING

The press room, said Mr. Williams, is one place where air conditioning "affects process as well as personnel.

"I believe it is generally agreed," he said, "that humidification of a press room results in better press work. Such humidification keeps the paper in softer condition, giving a better printing quality partly because of the absorption of moisture and partly because of the elimination of static electricity which tends to roughen the paper's surface."

Mr. Williams also declared that humidification of the press room results in an approximate 10% drop in ink consumption and a noticeable decrease of ink mist, which supposedly is caused by generation of a small static charge of finely divided ink particles thrown by centrifugal force from the high-speed rollers.

"Up to the present time," he told the publishers, "we have treated this ink mist problem with some success by humidification and by dilution, which is the process of supplying a large quantity of outside air to the press room and furnishing positive exhaust.

"But now," he continued, "work is being done in the field of direct ventilation of presses at the source of the ink mist. But even this process will be combined with a humidifying system for supplying the air to be exhausted."

EVAPORATIVE SYSTEM

For economy and practicality in press room conditioning, Mr. Williams advocated use of an evaporative cooling system.

"The essential requirement in a press room is the maintenance of a reasonably high relative humidity," he said. "The maintenance of what we would call comfort conditions is not of essential importance, inasmuch as the personnel are few in number and are accustomed to relatively high temperatures.

"It is, therefore, entirely practical to condition a press room using what is called evaporative cooling. This gives all the requirements for proper press room operation and at the same time, dissipates the heat of the press to such an extent that conditions, while not perfect, are greatly improved, and accomplishes this at a cost of approximately half of what a complete air-conditioning system with refrigeration would cost.

"In an evaporative cooling system, sometimes called a straight humidifying system, the cooling is done in a good deal the same way that a Mexican water cooler cools water in a dry bulb temperature of 95° down to a comfortable drinking temperature of, say 60°.

AIR WASHER USED

"In the summer, an evaporative system handles 100% outside air through an air washer. It is characteristic of an air washer that air passing through the water sprays becomes saturated at its original wet bulb temperature.

"If we take a day when it is 95° with 70° wet bulb outside, the air would enter the washer from the outside along the 95° dry bulb line and on hitting the sprays, it would cool down along the 70° wet bulb line until it was saturated at 70°. Twenty-five degrees or this temperature changes from sensible heat into latent heat of evaporation.

"This 70° air is then distributed through the press room where its quantity is automatically so adjusted that the heat generated in the press room is sufficient to give it a rise in temperature from 70 to 88½°.

"At this point, the relative humidity in the press room is 55% and the temperature in the press room is 88½°, which is 6½° below the outside temperature and probably 15 to 20° below what the temperature would have been in the press room without any air conditioning. In winter the system merely operates as a heating and humidifying system, handling sufficient outside air to maintain adequate ventilation."

Such a system of evaporative cooling is far more economical than a system using refrigeration, and accomplishes results which are perfect from the standpoint of process, Mr. Williams said.

"In connection with the press room system, it is desirable to humidify the stock storage spaces, in order to prevent the ends of the rolls from becoming dried out and brittle, particularly when stored near steam coils or in heated areas," he added. "This is purely a winter time requirement, and may economically be done as a sort of by-product of the press room system, using the excess of air not needed in the press room during winter.

"The stereotype department may also be satisfactorily treated by use of evaporative cooling producing conditions far more comfortable in winter than otherwise obtained.

"In such departments, due to the high concentration of heat load in one or two spots, it is usually desirable to do what is called spot cooling, that is, to design a distribution system so that the operators directly at the pots may adjust the flow of air to blow directly on them as they work, if they desire; or, if not, to turn it in any desired direction."

PROPER DISTRIBUTION

Proper distribution is the essence of satisfactory air conditioning, Mr. Williams emphasized.

"It makes no difference how accurate your control may be, how efficient your cooling service, how adequate the amounts of air handled may be," he said, "if the air is not distributed evenly without unpleasant drafts, and doesn't reach the places where the work is to be done, you have an unsatisfactory air-conditioning system.

"The matter of satisfactory distribution applies throughout any building, but it particularly applies to locations where heat load is highly concentrated. In a press room, it makes very little difference how much air you put in. If it does not reach the interior of the press, where the work is to be done, but merely bypasses across the ceiling—it accomplishes little or nothing.

"This is also true of the composing room which requires very careful handling. A composing room requires a large amount of air to carry the heat of the pots and to carry away the fumes of the pots; at the same time, this air must be very carefully distributed, so as not to cause drafts.

"The only other department in the plant in which air conditioning affects process is in the photo-engraving department. The processes of developing and printing are affected by both the temperature and humidity of the surrounding air, and by the temperature of the developing and sensitizing solutions which again are functions of the wet bulb temperature of the surrounding air.

"The etching department requires a special exhaust system to carry away the fumes and this exhaust system must be made of acid-proof material and must be connected with acid-proof material. The exhaust requirements of the photo-engraving system necessitate the use of 100% fresh air in the photo-engraving department, as this air is too contaminated to return to the main air-conditioning system."

Cool Newspapers

Robert T. Williams' arguments on the value of air conditioning to a newspaper should give the air-conditioning salesman good talking points for use on any employer of skilled personnel.

A.C.M.A. Executive Sails

William B. Henderson, executive vice president of Air Conditioning Manufacturers Association, shown with his wife just before sailing recently on a late summer vacation in Europe aboard the S. S. Westernland.

Artic
REG. U. S. PAT. OFF.
(DU PONT METHYL CHLORIDE)

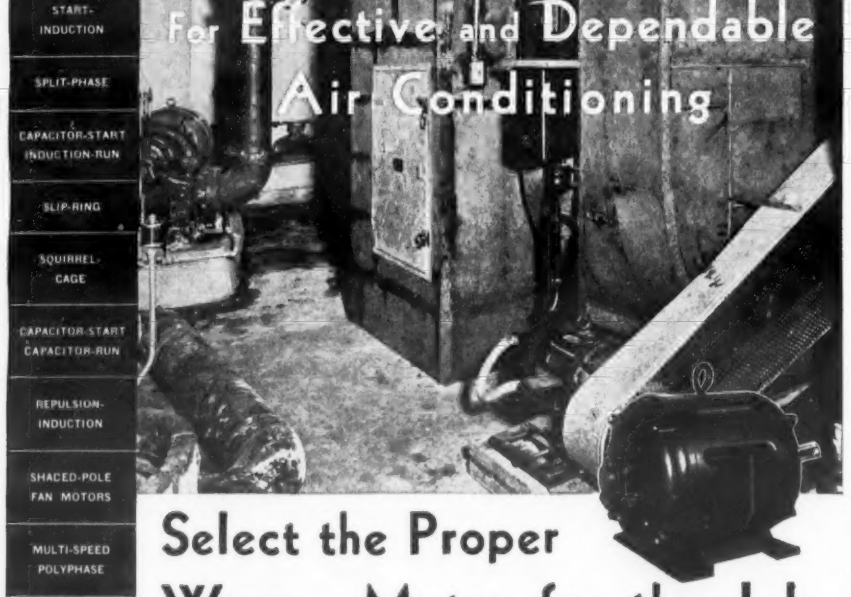
COAST-TO-COAST DISTRIBUTION—The standard Methyl Chloride. Stocked in standard and special 20-lb. containers for prompt delivery at 65 stock points in 46 cities; also Cuba, Mexico and Hawaiian Islands.

AT YOUR FINGER TIPS

DU PONT
REG. U. S. PAT. OFF.

THE R. & H. CHEMICALS DEPARTMENT
E. I. DU PONT DE NEMOURS & CO., INC.
WILMINGTON • DELAWARE

Write for free copies of "ARTIC Service News" containing list of authorized distributors and stocking points, and current information about refrigeration.



Select the Proper Wagner Motor for the Job

Dependable, economical and efficient operation of any air-conditioning installation depends largely upon the reliability and performance of the electric motors that drive the equipment. Consequently, manufacturers and contractors who recognize the value of dependable and sturdy motors for their air-conditioning installations specify Wagner motors to solve their drive problems. They know that the selection of the correct Wagner motors helps their equipment to give better, more dependable, more economical, and more efficient service.

Wagner builds all types of motors generally applied on air-conditioning machinery, making it possible for you to choose motors exactly suited for your installations. Wagner motors are available with proper mechanical and electrical characteristics to fit the varying requirements of compressors, pumps, air-movement devices, and all types of ventilating equipment.

The above picture illustrates a typical air-conditioning application using Wagner motors. A Wagner 7½-hp type RP polyphase squirrel-cage motor is belt-connected to the air-conditioner in the basement of a large department store in Texas.

On your next air-conditioning design or installation problem — consult Wagner. Wagner's experience will be helpful to you. Send for descriptive literature today.

ML 437-1M

Wagner Motors

Wagner Electric Corporation
6400 Plymouth Avenue, Saint Louis, U.S.A.

POSITIVE RESULTS
for
Cooling & Heating

There is a size and type of Aerofin Fan System Surface to meet every cooling and heating problem. Write today for Catalogue data.

AEROFIN is sold only by Manufacturers of Nationally Advertised Fan System Apparatus. — List upon Request

AEROFIN CORPORATION
CHICAGO DETROIT NEWARK, N. J. DALLAS ATLANTA
NEW YORK PHILADELPHIA

You'll make more money with C. I. T.

C.I.T. BUSINESS BUILDER

The localized national finance service

AUGUST Prepared by C. I. T. Corporation, unit of Commercial Investment Trust Corporation, capital and surplus over $100,000,000 1937

Aggressive Dealers Find C. I. T. Finance Plans Lead to Greater Profits in Summer Sales Drives

C.I.T. Offers "Summer Plan" For Automatic Heating

The automatic heating field is apparently headed for one of its biggest years. And summer is the time when business is done! Smart dealers are not content to wait until fall. Oil burners, furnace stokers, gas furnaces, water heaters and other utility devices of similar character can be installed most economically during the summer months. Skilled labor is available. Working days are not interrupted by bad weather or family demands on the present water and fuel systems, etc.

To meet this situation, the C.I.T. dealer makes use of the C.I.T. Summer Plan. Under this plan, *the consumer pays no instalments* until September or October. Think what this means! The equipment is put in, tested, and proved ready to work before the first regular monthly payment is due. Starting in the fall, a convenient, easy-to-understand system of monthly payments takes care of the unpaid balance. The purchaser knows just what this accommodation is costing him. You, the dealer, get your money promptly. Your profit is sure.

Tactful Credit Investigations

For nearly 30 years C.I.T. has been investigating the credit of time-buyers. A system has developed which is as rapid as it is efficient, yet each investigator is trained to gather information with quiet good taste.

A Dealer Advises Young Mothers!

The following novel sales plan seems particularly well suited to regular users of direct mail:—

Dealer B.... watches carefully the arrival of new heirs in the homes of his customers. Then he sends a letter of congratulation to the mother, accompanied

The prospective purchaser of automatic heat usually finds it advantageous to buy in August.

by an inexpensive keyhole type flashlight whose faint glow is ideally suited for her use in stealing a glance at the sleeping child. The dealer also encloses a list of things which other mothers have found very useful in filling the added responsibilities imposed on them:—

A new temperature-controlled refrigerator.

A new washing machine for those daily washings of baby's linen.

An ironing machine to make baby things smoother, dry them in bad weather.

An electric dishwasher to save time.

Automatic heating plant to keep the temperature uniform day and night.

A room cooler for the summer months.

A small electric room heater for special-time winter use.

These are but a few of the appliances suggested. Naturally Dealer B... recommends payment on the C.I.T. Budget Plan!

America's Largest Independent Finance Company Offers All-round Service That Helps Dealers Sell New Lines

Sales of refrigerators and other appliances are booming. Summer radio sales are on the rise. This didn't "just happen." It is the result of returning confidence on the part of buyers, PLUS the good values being offered by manufacturers and dealers today. The C.I.T. Budget Plan is a tremendous sales booster for household appliances. Backed by a name that is nationally known, the C.I.T. Budget Plan offers a simple way for the buyer to pay for his purchase *out of current income.* And the C.I.T. Budget Plan is your best salesman!

How Limited Recourse Helps You

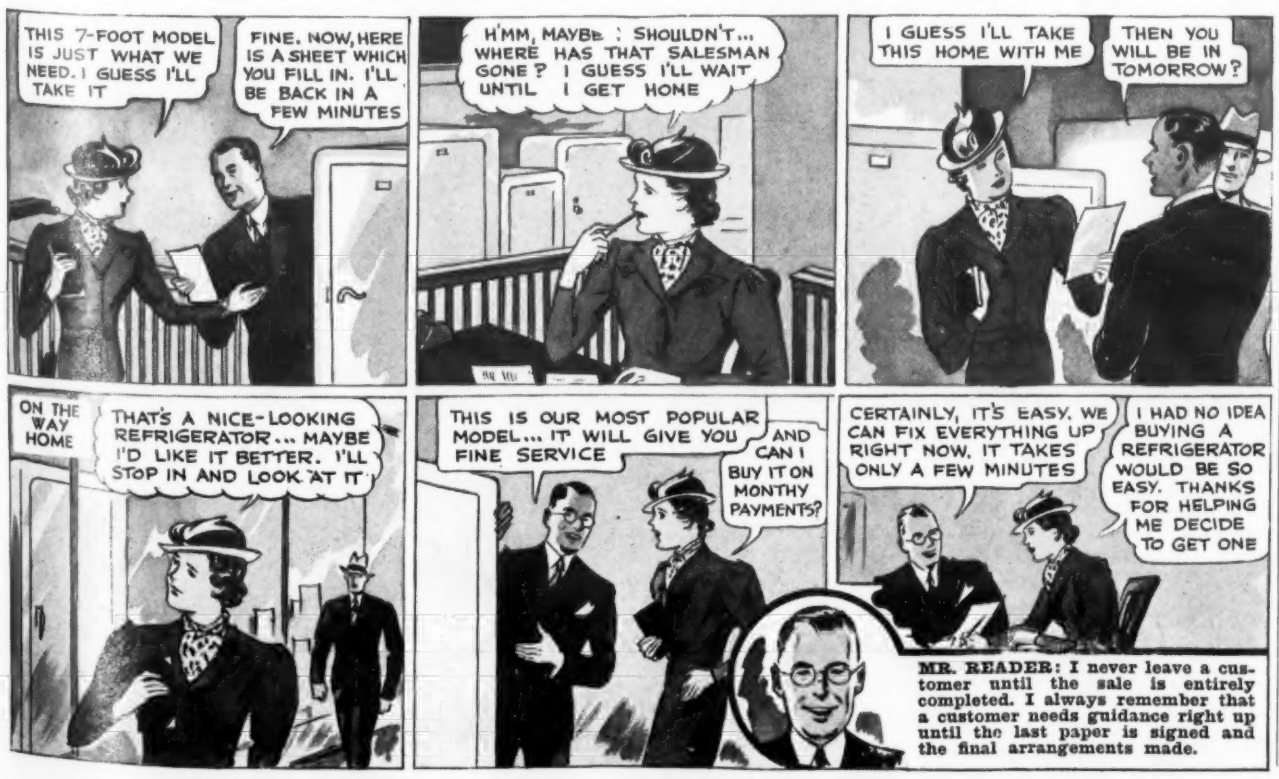
Under the C.I.T. Limited Recourse Plan your endorsement of appliance paper becomes without recourse after the purchaser has paid C.I.T. the first four monthly instalments promptly. Think what this means! You may do a larger volume of business on the same capital. You may add to capital while reducing liabilities . . . You receive 100% cash at once, leaving your capital fluid. Your current assets increase and are not frozen beyond immediate reach.

C.I.T. Handling More Appliance Paper Daily

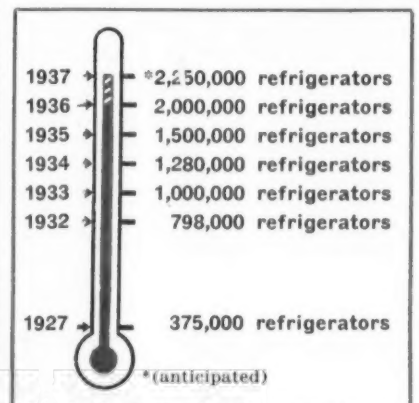
Every day C.I.T. is handling an increased volume of paper for many types of appliances. This means just one thing: bigger profits for the dealer featuring C.I.T. It is a name that is recognized everywhere as typifying the best in time-buying service. Dealer and consumer alike appreciate the friendly, efficient credit investigations and the minimum of "red tape." If you have not done so already, call the local C.I.T. branch and ask for a supply of the familiar C.I.T. posters, and other display material. Put C.I.T. to work, and watch your profits soar!

By keeping the C.I.T. display card always in sight, this appliance dealer lets everybody know that he offers the friendly, efficient service of America's largest independent sales finance company.

STICK WITH 'EM TILL THE DEAL IS CLOSED—*by Westcott*


THIS 7-FOOT MODEL IS JUST WHAT WE NEED. I GUESS I'LL TAKE IT
FINE. NOW, HERE IS A SHEET WHICH YOU FILL IN. I'LL BE BACK IN A FEW MINUTES
H'MM, MAYBE I SHOULDN'T... WHERE HAS THAT SALESMAN GONE? I GUESS I'LL WAIT UNTIL I GET HOME
I GUESS I'LL TAKE THIS HOME WITH ME
THEN YOU WILL BE IN TOMORROW?
ON THE WAY HOME
THAT'S A NICE-LOOKING REFRIGERATOR... MAYBE I'D LIKE IT BETTER. I'LL STOP IN AND LOOK AT IT
THIS IS OUR MOST POPULAR MODEL... IT WILL GIVE YOU FINE SERVICE
AND CAN I BUY IT ON MONTHY PAYMENTS?
CERTAINLY, IT'S EASY. WE CAN FIX EVERYTHING UP RIGHT NOW. IT TAKES ONLY A FEW MINUTES
I HAD NO IDEA BUYING A REFRIGERATOR WOULD BE SO EASY. THANKS FOR HELPING ME DECIDE TO GET ONE

MR. READER: I never leave a customer until the sale is entirely completed. I always remember that a customer needs guidance right up until the last paper is signed and the final arrangements made.



Here's the way sales of automatic refrigerators have mounted in the past 10 years.

Did You Know That

More than two million domestic automatic refrigerators were sold and installed in 1936. This is another milestone in the continually expanding refrigerator business. It is computed that there are approximately nine million automatic refrigerators in active use and that over 2,250,000 will be installed during the current year—another new high.

Over 80% of all refrigerator sales are on a time-basis. To countless buyers, C.I.T. is the recognized way to finance the purchase of a new refrigerator or other appliance needed in the home.

The Philosophy of DEALER DAN

Most people are in a good humor in vacation time. But sometimes they're in an awful rush. A man came into my office the other day who wanted a refrigerator in a big hurry. If it hadn't been for C.I.T.'s quick credit service, I might have lost a good sale. As it was, I made the sale, and a new friend as well.

C. I. T. CORPORATION • NEW YORK • CHICAGO • SAN FRANCISCO
ADVERTISEMENT

SPECIALTY SELLING IDEAS

Dealer with Small Display Space Finds 'Chariot' Trailer Big Promotion Aid

BURLEY, Idaho—Consistent use of advertising and sales promotion material is the pole for vaulting sales resistance which enabled William G. Hardy, Kelvinator dealer here, to beat the records of 11 competitive dealers in this town of 4,500 inhabitants by selling 86 refrigerators during 1936.

"We try to use all the factory sales helps and ideas, and to tie-in our selling with Kelvinator national advertising," Mr. Hardy declared. Sales this year, he reports, are even greater than they were last year.

Advertising run in the two local newspapers during this spring featured the Kelvinator "Prof. Quiz" broadcast and the Kelvin Home contest. In addition to that, the firm in cooperation with other dealers sponsored spot radio broadcast announcements.

The firm has been a Kelvinator dealership for the past two years. It handles refrigerators, ranges, washers and ironers, air conditioning, oil burners, and stokers.

Although the store space is small and the company sells insurance in addition to handling electrical appliances, Mr. Hardy makes use of all available display space, and builds up an effective arrangement of products and display material in his one store window.

A "Roman chariot" type trailer which Mr. Hardy built himself and which he uses both for making deliveries and for advertising his products, he considers another outstanding promotional help.

"I believe that the trailer is one of the best advertising mediums we have ever used," he declared. "Frequently people tell us that they had never heard much about Kelvinator until they saw our trailer flying all over the territory."

The trailer proved especially valuable as a delivery vehicle last summer when Mr. Hardy sold five refrigerators and an electric range to prospects in the little mining town of Jarbridge in the Nevada mountains, 100 miles from Burley.

Two other tie-in campaigns have recently helped Mr. Hardy sell more appliances. When ReDisCo, (Kelvinator financing company) announced the "Add-on Campaign," he wrote letters to every Kelvinator owner in his territory whose contract was in current condition telling him about the program and inviting him to take advantage of it.

He also mailed the names of the best prospects for ranges from among the Kelvinator users to the factory, so that they would receive the three letters on electric ranges in the "Second Step" sales campaign. Both of these promotional activities have already influenced his sales, Mr. Hardy added.

During 1936 the Wm. Hardy Co. did the best selling job (according to territory and population) of any dealer operating under the Walker Electric Co., Kelvinator distributor in Boise, Idaho. Its sales so far this year have kept it in that position, according to Earl Jenkins, Walker field man.

Houston Dealers and Utility Co. Staging Joint Sales Drive

HOUSTON, Tex.—To boost the present total of more than 40,000 household electric refrigerators in use here, local dealers, distributors, and the electric power utility are staging a cooperative sales campaign featuring a weekly refrigerator advertising section in the Houston Post.

First 4 Orders Pay Cost of Direct-Mail Campaign to List of 5,500 Prospects

PHILADELPHIA — Smashing the returns record of any direct mail piece ever used by the Colonial Stove Co. here, an "affidavit" signed by Pat Casey, sales director, dated July 10, 1937, and sent to a mailing list of 5,500 firms in 40 states, brought in 260 orders out of 887 replies in 24 days.

First four orders received—and they are still coming in, according to Sam Kazook, of the Colonial market research department—entirely paid for the entire cost of the mailing and printing.

Approach used in the "affidavit" was:

"Pat Casey, sales director for the Colonial Stove Co., of the City of Philadelphia, County of Philadelphia, State Pennsylvania, hereby deposes and says:

"That the Colonial Stove Co. has over a period of many years developed a steel wall cabinet:

"That the purposes are as follows:

A. To provide for practical, efficient, sanitary storage compartments for the home and factory for use in:

Kitchens and pantries (homes, apartments, cafeterias, etc.)

Bathrooms, as utility, linen and storage closets.

Factories, shops and mills as storage, tool and parts compartments . . ."

Printed in red, the next section claimed that modern kitchen equipment is the most highly nationally advertised of all major appliances and household units.

In three concise statements the "deponent" averred facts covering the construction of the cabinets, the company's discount policy, and that he would 'take pleasure in answering all queries . . . etc."

Bearing a golden seal with the name of the company and its years in business, the document wound up with the notary's statement:

"On the 10th day of July personally appeared before me one Pat Casey, swearing mightily and declaring the above statements to be true and correct, so 'elp me," signed by R. Mitton with the plaintive footnote: "My commission expires unless this gets results."

The Bee That Gets the Honey Doesn't Hang Around the Hive

——And the dealer who sells refrigeration, month in and month out, uses more than one method of getting business. On this and the following page are instances of successful use of direct-mail and other advertising, canvassing, new ideas on credit management, a traveling appliance shop, a no-operation-cost plan, and a whiskered refrigerator display.

Evansville Dealers Sponsor Joint Ad

EVANSVILLE, Ind.—Ten local mechanical refrigeration dealers cooperated in promoting their products through a black-and-blue double-page advertisement in the Evansville Press of July 18.

Participating dealers were: Brucken Radio Corp. (Frigidaire); Finke's (Grunow); Harding & Miller Music Co. (Crosley); The Hoffman Mart, Inc. (Stewart-Warner); Montgomery, Ward & Co. (America's No. 1); Moutoux Auto & Machine Co. (Westinghouse); R & G Furniture Co. (Frigidaire); Schear's (Westinghouse); Southern Indiana Gas & Electric Co. (Frigidaire and Electrolux); Kern's Wayside Furniture Store (Stewart-Warner).

Dealer Operates Traveling Appliance Shop

HOLYOKE, Mass.—By buying and outfitting a "tear drop" automobile trailer for use in house-to-house demonstrations of electrical appliances, Haskell Electric Co., local Kelvinator dealer, becomes the first store in southern New England to operate a traveling appliance shop, according to sales manager W. A. Lowry.

When completely fitted out, the trailer carries a six-foot refrigerator, three washing machines, an electric cooker, an electric ironer, and a vacuum cleaner.

Large groups of housewives may be addressed through the amplifier with which the trailer is equipped, Mr. Lowry declares.

Canvassing Brings Dealer 225 Sales

GALION, Ohio—Cold canvassing to corner profits gets the wholehearted indorsement of C. L. Morkel, Westinghouse dealer here, who attributes the 150 refrigerator and 75 washing machine sales which he made last year to intensive use of this method of getting prospects.

Starting out every morning with a list of names and ringing door bells all day—then still more door bell ringing in the evening—such is his system of selling appliances to the 1,700 residents of this town who have electric meters.

Right now Dealer Morkel is concentrating on washing machine sales. Inflated list prices and excessive trade-in allowances are two items that he looks down his nose at. It takes only a little extra time to close a sale and keep the deal "clean," he states. Average offer which he makes on washing machine trade-ins is $5. He dismantles the old machines and sells the motors.

While he does give demonstrations either in the store or in the prospect's home to close some sales, Mr. Morkel says that a good method of operation story, plus a strong sales talk on the features of the particular model he's selling, are all that's needed in closing most washing machine sales.

Westinghouse Opens Kitchen Institute

PITTSBURGH — Westinghouse Electric & Mfg. Co.'s first kitchen and laundry planning institute has been opened in the Boggs & Buhl's department store here.

Located on the first floor of the store, the institute, headed by officials of the Westinghouse merchandising division, will provide a free planning service for both new and remodeled kitchens and laundries, and will serve as a clinic for domestic electrical appliances.

Westinghouse engineers, who design and build electrical equipment for homes and apartments, have developed plans to install them properly with respect to accessory equipment. In these plans, which include layouts for all types and sizes of rooms, judicious use of color, adequate lighting, and proper location of equipment have been considered.

The institute will serve as a working exhibit of the modern engineered kitchen and laundry, and will be maintained as a "service center" for problems pertaining to the planning of efficient workrooms in homes and apartments.

Bethlehem, Pa. Dealership Remodeled & Enlarged

BETHLEHEM, Pa.—E. S. Gartley, Crosley and Stewart-Warner dealer here, is remodeling his display room and changing the front of his store.

Send for this

FREE ILLUSTRATED PORTFOLIO OF

Kimpak

REG. U.S. PAT. OFF. & FOREIGN COUNTRIES

CREPE WADDING

Learn how hundreds of foremost manufacturers use economical KIMPAK to guard products against all kinds of shipping damage

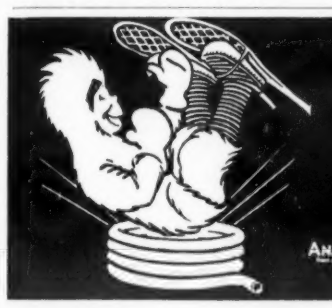
● KIMPAK is a soft, resilient crepe wadding that comes in rolls, sheets, and pads of various thicknesses. It is free of dirt, grit or other foreign substances. KIMPAK protects fine finishes, minimizes breakage during shipment. It gets your product to your customers in perfect condition.

Because it is easily applied, KIMPAK saves time, labor and money in packing or package protection.... Send today for your copy of the new "Portfolio." Please make request on your letterhead, and address nearest office.

KIMBERLY-CLARK CORPORATION
NEENAH, WIS.

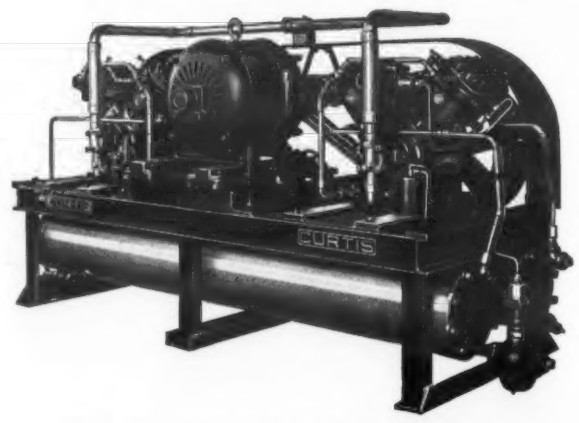
9 S. Michigan Ave., Chicago 122 E. 42nd St., New York City 510 W. 6th St., Los Angeles

LIGHT AS A FEATHER | SOFT AS WOOL | ABSORBS LIKE A SPONGE | GIVES LIKE A SPRING



Anaconda Copper
REFRIGERATION TUBES
Unusually Soft!
THE AMERICAN BRASS CO.
FRENCH SMALL TUBE Branch
General Offices: Waterbury, Conn.

In Air Conditioning



More and more, with the growing demand for air conditioning, dealers and engineers alike are realizing the built-in quality of Curtis products which guarantees efficient, economical, carefree performance. There is a Curtis Condensing Unit for every air conditioning and refrigeration need.

YOU CAN ALWAYS DEPEND ON

CURTIS

● Curtis engineering created the patented "Centro-Ring" system of positive pressure oiling with no wearing parts. Curtis designing includes

1. Timken Tapered Roller Main Bearings
2. Water jacketed compressor heads and cylinders
3. Drop forged heat-treated crank-shafts and rods
4. Built-in oil separator with automatic return and automatic water valves
5. Precision manufacture throughout the entire unit

86 Air Conditioning units in the complete Curtis line from 1 ton to 30 tons.

Represented in Canada by
Canadian Curtis Refrigeration Co., Ltd.
20 George St., Hamilton, Ontario

CURTIS REFRIGERATION
AIR CONDITIONING AND COMMERCIAL

CURTIS REFRIGERATING MACHINE CO.
Division of Curtis Manufacturing Co.
1912 KIENLEN AVE. ST. LOUIS, MO.

More Attention to Credit Requirements, Less to Down Payment Makes for Lower Losses, York, Pa. Manager Believes

YORK, Pa.—The size of down payments on electric refrigerators bears little relation to credit risks or promptness of making future payments. So believes W. H. Barnitz, manager of Hoover's, local refrigeration dealer.

Adhering to the principle that there should be no difference in methods used to check credit customers, whether they make a large or small down payment or none at all, Mr. Barnitz has established a less-than-1% mark for credit losses in the Hoover store.

He maintains statistical charts which show at all times the status of accounts receivable, the average for each account, average time of credit extension, percentage of accounts past due, sales from day to day, and gross and net profit for each month. All time-payment risks are selected after careful investigation and no outside collectors are employed by the store.

During the past year, Hoover's made but two repossessions. Each repossessed refrigerator is charged off as a loss and the account closed.

"The important point in a credit transaction is not the down payment," says Mr. Barnitz. "I would rather make a sale without a down payment and have the assurance that the weekly payments would be made than to get a 50% down payment and have continual trouble in collecting others.

"Where the down payment is considered the more important factor it can readily be predicted that credit losses will be higher," he continued. "In such cases the credit manager is likely to pass over some of the credit requirements too lightly. It is a serious mistake to open an account and permit a customer to leave without having a clear understanding of the store's credit policy."

Hoover's tells customers that only two reasons for deferring time payments will be accepted as valid by the store—sickness and loss of income. These are accepted only if the delinquent customer reports to the store regularly every two weeks.

"It may seem ridiculous to make a man come in here every two weeks to tell us he has no job," Mr. Barnitz adds, "but we find it is not. We do not have many cases of that kind, but when a man has to report every two weeks he soon gets to the point where he'd rather pay than report inability to meet his obligations.

"In writing letters to delinquent time payment customers, I suit the letter to the individual rather than using a form letter. By keeping a file of all my accounts, I can take any card from the file and accurately describe that customer in 150 words."

Itinerant Stranded in Indio, Calif., 14 Years Ago Now Region's Best Dealer

INDIO, Calif.—With a few tools in his hip pocket and less than $2 in cash, E. S. Shepard, then an itinerant watchmaker trying to "bum" his way to Los Angeles on the "blind baggage," was ordered off the train by a railroad detective and left stranded in this California desert town 14 years ago.

Today, this same Mr. Shepard runs a General Electric dealership in his jewelry store here, and in 1936 his appliance sales totaled 131 refrigerators, 18 ranges, one dishwasher, two Disposalls, and a number of washers and ironers.

When he was first put off the blind baggage, Mr. Shepard had no intention of staying in Indio any longer than he had to. He planned to "hop the rods" of the next local going his way, but hunger was fated to change his plans.

Feeling the need of food, he dropped into a local restaurant for a bite to eat, and there he noticed that the big restaurant clock was stopped. Finding that it was out of order, he volunteered to fix it for a 10-meal meal ticket, and was taken up.

The hot, dry, desert air dried up lubricating oil, and Shepard found other clocks in town that needed repairing. There was no other watchmaker or jeweler in the community, so, before long, he opened a jewelry shop in one corner of a merchant's store and started to build a business.

Soon he talked the Southern Pacific Railroad Co. into appointing him official inspector of trainmen's watches, and during nine succeeding years he established a successful jewelry merchandising business.

Then someone proposed that Shepard add a line of refrigerators. He hesitated, but finally decided to try some. And during the depression years of 1932 and 1933, he found that the new merchandise was keeping him in business. People had stopped buying diamond rings—but they were buying refrigerators.

At the present time, Shepard claims to sell 95% of all the refrigerators sold in his territory, maintains a full line display of appliances, and runs a pilot-coach trailer display all over his district. Service calls may come from as far away as Blythe, Calif., 125 miles away on the Colorado river.

Most of Mr. Shepard's territory is in Coachella valley between the San Bernardino and San Jacinto mountains. It is largely desert country with temperatures running to 130° F. for a week at a time.

By means of a unique window display, Shepard took advantage of the local annual "Whiskerino" week. During that week every male in town lets his whiskers grow as they will and as long as they will, dresses in wild-west regalia, and lives in a "wide-open" town.

Mr. Shepard put a 1927 G-E refrigerator with exposed coils in his show window, spruced it up with a fresh coat of Duco white, put a pair of dusty knee-length miner's boots on its front legs, a 10-gal. sombrero on its top, and decorated it with false whiskers and a pair of dark glasses.

On its door was painted the refrigerator's own story.

"I am the older brother of these two new 1937 refrigerators. I have never been oiled. I have never stopped for a wink of sleep and have worked every minute here on this hot desert, day and night and Sundays—and what's more, I'm still running plenty good—as good as I ever did and not costing a dime more a month for electricity than when I was a fresh, stylish, new buck of the 1927 styles. If an automobile had done the same job I have, it would have run over 2,000,000 miles in that time, at only 20 miles an hour."

The unit then continued in first person with a sales talk for G-E refrigerators in general and ended with the signature, "Whiskerino."

Paying for Year's Operation Overcomes Prospects' Objections

MENOMINEE, Mich.—Offering to pay the entire operating costs on each electric refrigerator for one year, Wm. Van Domelen, Norge dealer, recently began a two-week sales campaign that resulted in the sale of 92 refrigerators in Menominee, which has a population of but 12,000.

Last spring, Mr. Van Domelen learned from a questionnaire that he sent out to about 150 of his refrigerator customers that $1 was the average monthly cost of operation. From consultation with his salesmen he learned that one of the chief obstacles involved in selling was the difficulty of convincing prospects of the low operating costs. His next step was the launching of an extensive newspaper advertising campaign in which he put forth his offer to pay the entire operating costs for one year on each new Norge unit sold during the two-week period of the campaign.

So successful was the campaign that Mr. Van Domelen is now engaged in promoting a similar program in electric ranges. Consulting some 100 range owners he has found that the average operating expense is $25 yearly.

This amount he will deduct from the price of a range during a 30-day campaign.

This Is the Connecting Rod Assembly

Drop forged connecting rod, special cast iron piston with full floating wrist pin in bronze bearing—typical of the fine material and workmanship in each of the assemblies distinguishing Mills Modernized Refrigeration.

Mills Condensing Units

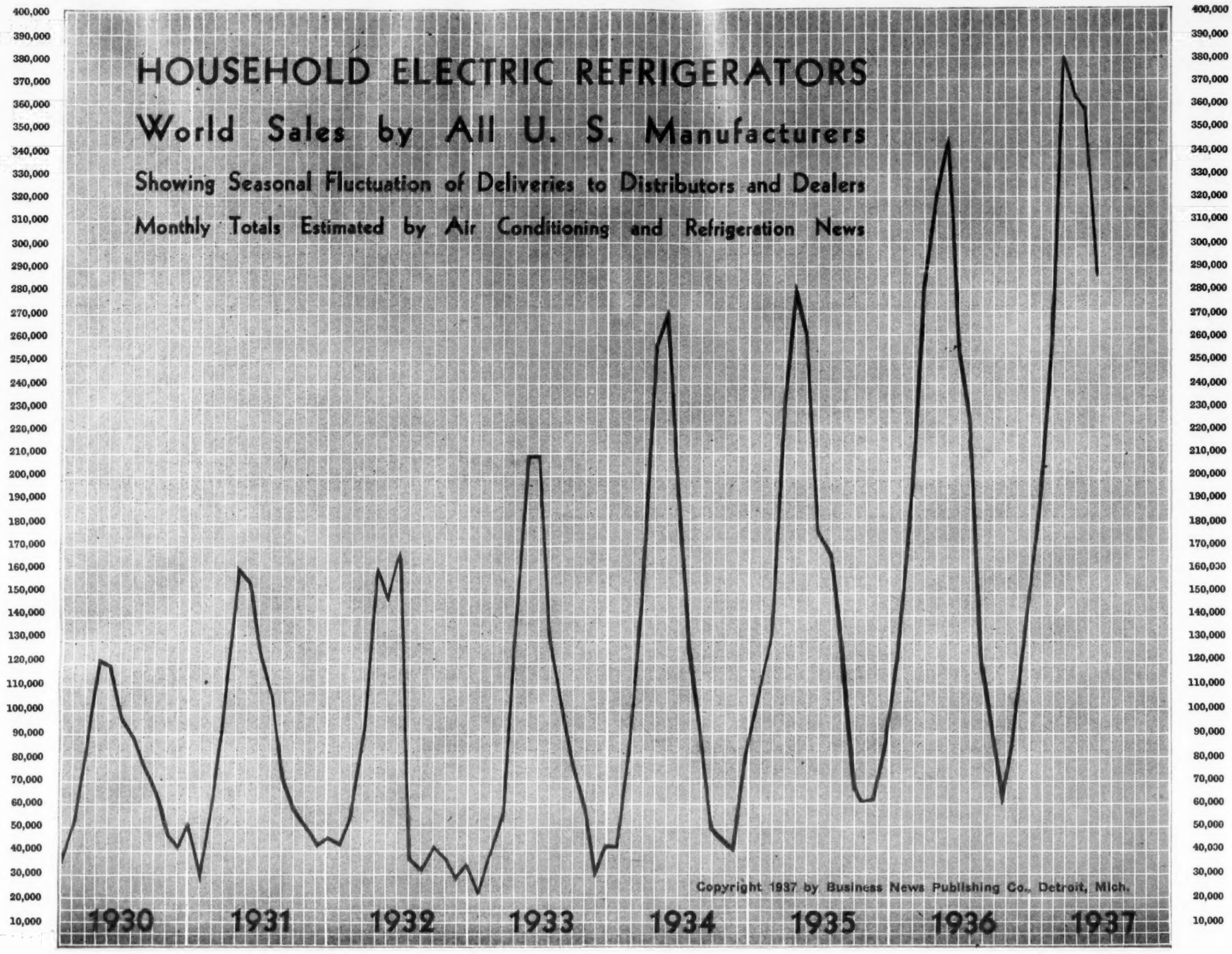
Mills Novelty Company, 4100 Fullerton Avenue, Chicago, Illinois

TAG SNAPON CONTROLS For Service Replacement *profits*

The four essentials of any refrigeration controlling device are fully met in TAG's Snapon Control Type R-7 shown here. The construction is the **simplest** of any on the market. The current carrying and movable parts are **rugged** and have the Underwriters' approval up to and including 1½ HP motors, so that the R-7 will frequently outlive the units it serves. Its **accuracy** has been proven in many breakdown tests by the nationally known manufacturers who use it. And, in **appearance** it bespeaks its solid utility and faultless operation. Send for a copy of the new TAG Catalog No. 1136-25.

ASK YOUR JOBBER ABOUT TAG SNAPON CONTROLS AND TEST EQUIPMENT.

C. J. TAGLIABUE MFG. CO.
Park & Nostrand Ave's., Brooklyn, N. Y.



Other Sales Charts In This Issue

Other sales figures in this issue are as follows:

Nema household sales by states for June, 1937, and totals for the first 6 months of 1937, page 23.

Nema commercial sales for June, 1937, and totals for the first 6 months of 1937, page 14.

Air-conditioning sales for June, as reported by U. S. Bureau of the Census, page 18.

• • •

	1930	1931	1932	1933	1934	1935	1936	1937	
January	34,000	22,700	39,400	19,400	38,000	103,500	125,400	181,800	
February	51,000	54,700	52,600	36,200	82,500	128,300	186,200	258,500	
March	84,500	96,600	91,500	59,200	149,000	228,100	285,900	380,100	
April	121,000	159,300	158,300	127,400	255,400	281,900	321,300	363,500	
May	118,500	153,500	144,200	208,200	268,600	261,100	344,200	359,000	
June	93,000	122,200	163,300	208,700	187,600	174,860	253,600	286,200	
July	83,000	103,800	33,500	127,300	122,400	167,000	221,500		
August	72,000	69,800	28,900	98,100	87,700	120,700	117,900	1,829,100	
September	62,500	53,200	38,100	72,300	46,300	63,852	90,000		
October	45,000	48,100	34,100	56,700	41,600	56,690	57,200		
November	37,000	39,600	26,300	27,900	35,700	57,027	83,940		
December	48,500	41,500	30,100	39,300	75,800	79,240	135,100		
Yearly total	850,000	965,000	840,300	1,080,700	1,390,600	1,722,269	2,222,240		

Nema Air Conditioner Sales Show Sharp Rise in June

(Concluded from Page 1, Column 3)

three-quarter million units in the half-year period. Last year's six-month sales total was 1,516,600 units, a new record at that time.

Household electric refrigerator sales reported for June by 15 member companies of the household refrigeration section of the refrigeration division of National Electrical Manufacturers Association totaled 266,229 units, compared with 235,853 units reported for June, 1936. Nema reports for household refrigerator sales during the first half of the year totaled 1,710,690 units.

World sales of commercial refrigerating equipment reported by members of Nema's commercial refrigeration section in June amounted to 33,643 units, compared with 28,543 units sold during June, 1936.

Sales of self-contained air conditioners totaled 2,519 units, a considerable improvement over the 1,635 units sold during the previous month, and the 1,719 units in June, 1936.

Sales of all other commercial equipment also showed up well when compared with June sales last year, in most cases exceeding the marks set a year ago. Commercial sales for the half-year totaled 179,582 units.

Household Sales By Nema Only Total 266,229 in June; 1,710,690 for 6 Months

The following 15 member companies of the Refrigeration Division of the National Electrical Manufacturers Association (Nema) reported household refrigerator sales for first six months, 1937: Apex Electrical Mfg. Co., Crosley Radio Corp., Fairbanks, Morse & Co., Frigidaire Corp., General Electric Co., Gibson Electric Refrigeration Co., Kelvinator Corp., Leonard Refrigerator Co., Norge Corp., Servel, Inc. (export only), Stewart-Warner Corp., Sunbeam Electric Mfg. Co., Uniflow Mfg. Co., Universal Cooler Corp., and Westinghouse Electric & Mfg. Co. Member companies not reporting included: Jomoco, Inc., Merchant & Evans Co., and Sparks-Withington Co.

The sales of the reporting companies do, however, include units manufactured for the following concerns: Major Appliance Corp., Montgomery Ward & Co., Potter Refrigerator Corp., and Sears, Roebuck & Co.

SALES FOR JUNE, 1937

Lacquer (Exterior) Cabinets Complete	Domestic Quantity	Domestic Value	Canadian Quantity	Canadian Value	Other Foreign Quantity	Other Foreign Value
1. Chest	1,253	$ 59,381	1	$ 49	101	$ 5,240
2. Less than 3 cu. ft.	19	1,177	.....	.....	.....	.....
3. 3 to 3.99 cu. ft.	4,966	304,458	44	2,675	1,565	96,509
4. 4 to 4.99 cu. ft.	36,727	2,463,470	1,459	97,943	4,762	333,380
5. 5 to 5.99 cu. ft.	61,557	4,931,247	964	79,457	2,670	231,518
6. 6 to 6.99 cu. ft.	91,230	7,817,021	498	37,975	1,440	140,099
7. 7 to 7.99 cu. ft.	15,988	1,668,294	77	7,821	638	69,523
8. 8 to 9.99 cu. ft.	6,238	680,862	9	1,060	46	5,493
9. 10 to 12.99 cu. ft.	8	1,013	.....	.....	.....	.....
10. 13 cu. ft. and up	7	1,445	.....	.....	.....	.....
11. Total Lacquer	**217,993**	**17,928,188**	**2,962**	**226,980**	**11,222**	**882,256**
Porcelain (Exterior) Cabinets Complete						
12. Up to 4.99 cu. ft.	330	25,797	42	3,321	103	8,129
13. 5 to 5.99 cu. ft.	5,926	533,642	129	11,951	294	27,066
14. 6 to 6.99 cu. ft.	13,586	1,357,870	37	3,805	164	17,134
15. 7 to 7.99 cu. ft.	3,575	399,957	20	2,232	102	12,114
16. 8 to 9.99 cu. ft.	2,652	326,148	16	2,002	94	12,638
17. 10 to 12.99 cu. ft.	436	83,149	.....	.....	39	6,963
18. 13 cu. ft. and up	1,062	210,851	6	1,183	62	15,256
19. Total Porcelain	**27,567**	**2,937,414**	**250**	**24,494**	**858**	**99,300**
20. Total—Lines 11 and 19	**245,560**	**20,865,602**	**3,212**	**251,474**	**12,080**	**981,556**
21. Separate Systems ¼ Hp. or Less	1,094	60,824	268	8,911	1,391	63,180
22. Separate Household Evaporators	2,388	19,106	26	498	210	3,201
23. Total—Lines 20, 21, 22	**249,042**	.....	**3,506**	.....	**13,681**	.....
24. Condensing Units ¼ Hp. or Less	1,389	69,633	39	2,748	344	21,366
25. Cabinets—No Systems	2,185	83,531	1	101	60	7,169
26. Total Household	.....	**$21,098,696**	.....	**$ 263,732**	.....	**$1,076,472**

SALES FOR FIRST SIX MONTHS, 1937

Lacquer (Exterior) Cabinets Complete	Domestic Quantity	Domestic Value	Canadian Quantity	Canadian Value	Other Foreign Quantity	Other Foreign Value
1. Chest	6,410	$ 301,386	47	$ 2,291	766	$ 39,195
2. Less than 3 cu. ft.	156	3,443	.....	.....	.....	.....
3. 3 to 3.99 cu. ft.	31,042	1,890,634	593	35,419	19,951	1,211,452
4. 4 to 4.99 cu. ft.	183,920	12,344,297	8,458	567,722	32,007	2,173,371
5. 5 to 5.99 cu. ft.	383,183	30,310,962	7,039	579,031	16,554	1,392,852
6. 6 to 6.99 cu. ft.	564,180	48,500,473	3,425	314,772	9,045	827,398
7. 7 to 7.99 cu. ft.	145,567	14,941,614	976	99,635	4,289	468,724
8. 8 to 9.99 cu. ft.	49,834	5,331,645	66	7,122	1,364	166,348
9. 10 to 12.99 cu. ft.	899	113,811	.....	.....	.....	.....
10. 13 cu. ft. and up	11	2,401	.....	.....	.....	.....
11. Total Lacquer	**1,365,202**	**113,746,666**	**20,604**	**1,605,992**	**83,976**	**6,279,340**
Porcelain (Exterior) Cabinets Complete						
12. Up to 4.99 cu. ft.	4,067	312,389	253	20,127	395	32,377
13. 5 to 5.99 cu. ft.	43,263	3,862,861	704	64,766	1,860	165,118
14. 6 to 6.99 cu. ft.	95,337	9,481,154	335	34,441	1,101	113,777
15. 7 to 7.99 cu. ft.	32,337	3,609,681	139	15,891	860	96,803
16. 8 to 9.99 cu. ft.	23,215	2,872,200	62	7,923	850	111,203
17. 10 to 12.99 cu. ft.	2,329	445,227	9	1,776	223	36,908
18. 13 cu. ft. and up	3,757	736,795	23	4,658	338	70,397
19. Total Porcelain	**204,305**	**21,320,307**	**1,525**	**149,582**	**5,627**	**626,583**
20. Total—Lines 11 and 19	**1,569,507**	**135,066,973**	**22,129**	**1,755,574**	**89,603**	**6,905,923**
21. Separate Systems ¼ Hp. or Less	1,504	60,938	1,777	60,256	7,153	327,431
22. Separate Household Evaporators	15,438	122,067	217	3,362	3,362	44,315
23. Total—Lines 20, 21, 22	**1,586,449**	.....	**24,123**	.....	**100,118**	.....
24. Condensing Units ¼ Hp. or Less	6,876	395,031	211	14,051	2,638	166,938
25. Cabinets—No Systems	7,555	280,928	7	455	865	38,603
26. Total Household	.....	**$135,925,937**	.....	**$1,833,698**	.....	**$7,483,210**

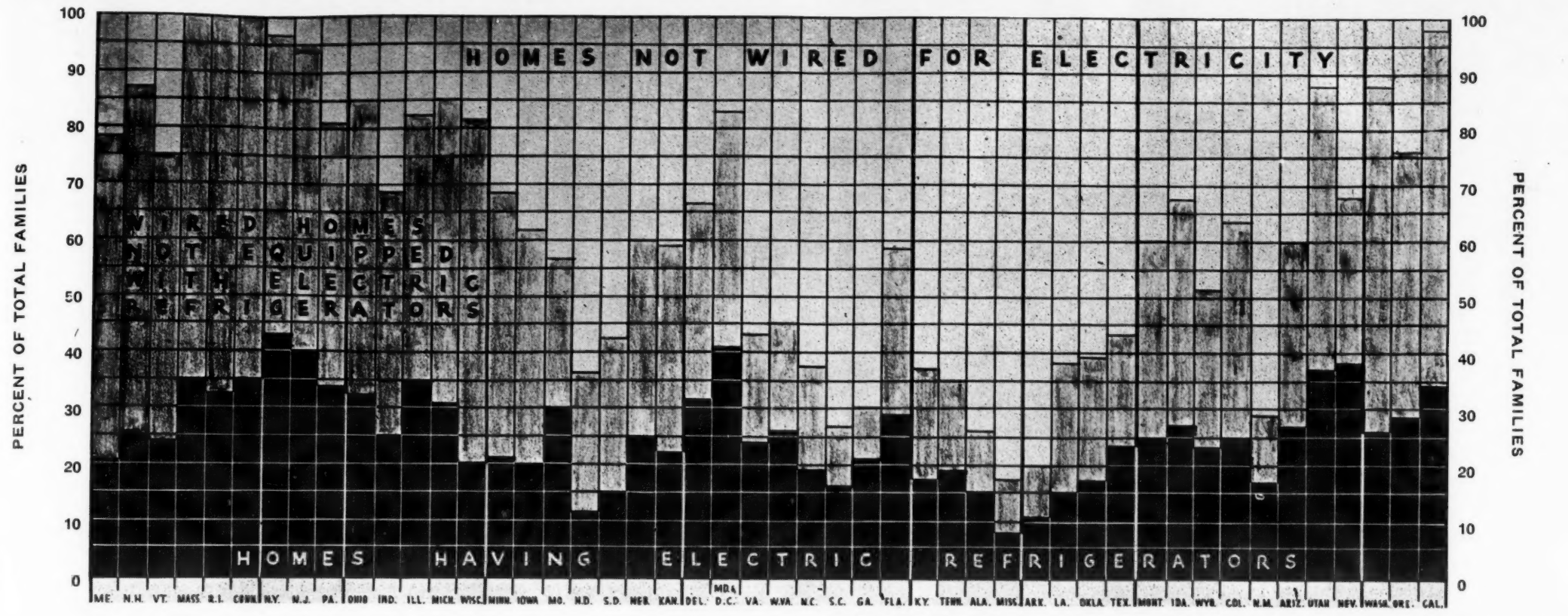
Turney Opens Appliance Shop in St. Louis

ST. LOUIS—Frank Turney, formerly of Columbia, Mo., opened his own appliance shop here last week. The store will sell Fairbanks-Morse refrigerators, radios, and home laundry equipment.

Mixmaster Given with Gibsons Sold by Williams Radio Co.

ASHLAND, Ky.—Williams Radio Co., in a special sale which closed July 19, gave a Mixmaster electric mixer free with every purchase of a new Gibson refrigerator.

Chart A—Electric Refrigerator Sales Opportunity by States


HOMES NOT WIRED FOR ELECTRICITY
WIRED HOMES NOT EQUIPPED WITH ELECTRIC REFRIGERATORS
HOMES HAVING ELECTRIC REFRIGERATORS
PERCENT OF TOTAL FAMILIES
PERCENT OF TOTAL FAMILIES
100
90
80
70
60
50
40
30
20
10
0
ME. N.H. VT. MASS. R.I. CONN. N.Y. N.J. PA. OHIO IND. ILL. MICH. WISC. MINN. IOWA MO. N.D. S.D. NEB. KAN. DEL. MD. & D.C. VA. W.VA. N.C. S.C. GA. FLA. KY. TENN. ALA. MISS. ARK. LA. OKLA. TEX. MONT. IDA. WYO. COL. N.M. ARIZ. UTAH NEV. WASH. ORE. CAL.

Courtesy Household Refrigeration Dept., Westinghouse Electric & Mfg. Co. (Copyrighted)

* * *

Cosgrove Points to Vast Unsold Market as Answer to 'Bogey' Of Refrigerator Saturation

By R. C. Cosgrove, Manager, Household Refrigeration, Westinghouse Electric & Mfg. Co.

WHEN a "specialty product" passes its pioneering stage, is through with its growing pains, and emerges with complete public acceptance to be counted with America's great industries, the factor of "saturation" immediately arises. This recognition of the possibility of saturation of a market is not dangerous in itself rather does it provide a perspective of the future for the industry. However, I do feel that we have allowed the saturation shibboleth to influence our judgment as to the direction we should take in merchandising and providing for the distribution of certain products, particularly the domestic electric refrigerator.

The major electric refrigerator manufacturers have spent millions of dollars in sponsoring sales promotion education to the retailer and salesman with the result that the product has enjoyed a steady sales increase throughout the past several years.

As a matter of fact, there has been no "depression" for the electric refrigerator industry—testimony of the excellent promotional and advertising work that has been done to excite public acceptance.

How long can this volume continue?

In reply, I'd like to "take a look at the record." Of course, one might get reams of statistics and figures, on marriages, constructions, births, etc., but fundamentally it's the number of wired homes that determines the market.

The sales record for the industry shows a continued increase from year to year, so that for 1937, two and a quarter million refrigerators are assured. A further increase is expected in 1938.

The result of these sales shows, as of Jan. 1, 1937, approximately nine million refrigerators in use. A substantial proportion are now outmoded because they do not compare with present-day standards of operating economy, convenience, or beauty.

A replacement market is beginning to take form. In 1937, about 12½% of the sales will replace old refrigerators. This percentage will go higher as more refrigerators are in

(*Concluded on Page 10, Column 1*)

Chart B—Yearly Increase in Number of Residential Customers Added to Central Stations

Year Beginning Jan. 1st	Total Domestic Customers	Yearly Increase
1903	583,000	
1908	1,946,978	1,363,978*
1913	3,100,918	1,153,940*
1918	5,810,300	2,709,382*
1919	6,300,000	489,700
1920	7,400,000	1,000,000
1921	8,721,000	1,321,000
1922	9,350,000	629,000
1923	10,135,191	785,191
1924	11,811,640	1,676,449
1925	13,411,908	1,600,268
1926	15,123,304	1,711,396
1927	16,516,109	1,392,805
1928	17,696,063	1,179,954
1929	18,748,282	1,052,219
1930	19,569,606	821,324
1931	19,880,329	310,723
1932	19,658,018	222,311‡
1933	19,140,287	517,731‡
1934	19,300,834	160,547
1935	19,866,008	565,174
1936†	20,519,672	653,564
1937†	21,319,672	800,000
1938†	22,519,672	1,200,000

†Preliminary. *Five Year Period. ‡Loss.

Electrimatic

WATER REGULATORS

Write for our catalog describing refrigeration and air conditioning controls available in sizes and types to suit your requirements.

THE ELECTRIMATIC CORPORATION
2100 INDIANA AVE., CHICAGO, ILL.

Why Be Content With HALF-A-LOAF?

There may be some foundation for the old saying that "Half-a-loaf is better than no bread at all." But there is no logical reason for anyone in Commercial Refrigeration or Air Conditioning to content himself with half-a-loaf of the available business because of a line deficient in essential models.

Servel refrigerating machines effectively cover the entire profitable market, and afford the salesman an opportunity to "get-in" on all practical installations, large or small. Servel's 15 years of experience in the field give the salesman the added assurance of maximum operating efficiency and complete customer satisfaction.

Servel offers more than 40 standard full-capacity models—designed for every type of application and climatic condition. *Why be content with half-a-loaf?* Write—now—for details. Servel, Inc., Electric Refrigeration and Air Conditioning Division, Evansville, Indiana.

SERVEL

COMMERCIAL REFRIGERATION and AIR CONDITIONING

More Homes Without Lights Than With Electric Refrigeration, Cosgrove Says

(*Concluded on Page 9, Column 5*)

use, of course. However, by the same token, not all refrigerators sold help to absorb the virgin market.

In analyzing the sold and unsold market for electric refrigeration, based on percentage of wired homes, we have a national average of Jan. 1, 1937, of 41.1% of wired homes with electric refrigerators, 58.9% without. See Chart A.

The state sales vary, with Maine for example, only 26.9% sold, while Georgia is 68.6% saturated. The interesting side light is the continued increasing sale of electric refrigerators in Georgia, as its "sold" market gets higher!

Homes unwired are estimated at 9,466,492, while only 9,000,000 refrigerators are in use. More homes without electric lights than with electric refrigerators! The activity of the R.E.A. and general central station expansion is bound to increase the wired-home figure considerably, in the next decade. **As wired homes increase, so does the market for electric refrigerators.**

The trend of new domestic electric customers is interesting in that it parallels economic conditions, new families created through marriage, and new dwelling construction.

If we may assume that every wired home is a potential electric refrigerator customer, then our future market may be readily determined. In **Chart B** we show the trend since homes were first wired.

In the above figures, we see a recession during the lean years of 1932 and 1933, but over a 10-year period—1920 to 1929—taking in good and off years, we have for the 10-year average 1,195,715 new wired homes annually.

Conservatively for 1938, as the upward trend continues, we shall see over a million new domestic electric customers added to utility lines.

If new construction is a factor, there is said to be a potential shortage of some six or seven million residential dwellings, inasmuch as building was practically at a standstill during the depression years.

In fact, the statement is made that for a long period there has not been sufficient new homes constructed to replace the homes destroyed by fire and flood to say nothing of natural obsolescence.

If we consider the experience of other major appliance lines, we find that their volume has increased as their saturation progressed.

People talked about saturation in the laundry equipment business 10 years ago, and yet in the last couple of years, the sale of washing machines reached an all-time high.

The radio industry saturation is said to be 78.6% with almost 25,000,000 in use, and behold, in 1936, 7,413,000 sets were sold for home use, in addition to almost a million and a half for automobiles!

Considering the resourcefulness of manufacturers in improving designs and efficiency, stable prices consistent with mass income purchasing power, the upward trend of new wired homes, **we should turn to the job of selling and serving electric refrigerators to the American public,** and forget about "saturation"—there just isn't any!

Put GILMERS on display they pay

Use the BAR...35 hooks on a sturdy, space-saving stock rack (only 36 inches wide) that's good-looking and rust-proof. Each hook has Gilmer Belt number tag to identify each Gilmer size quickly. Keeps your stock of Gilmers out to be seen and sold. Gives you perpetual belt inventory—makes re-ordering easy—takes up little wall space. Complete with attractive display sign. 50c separately, or

FREE . . . with any 35-belt assortment of Gilmer Belts.

Get the HOOK

Stamped metal, finished in vivid orange. Has identifying belt number. Gives you a flexible individual storage or display unit for fast-selling Gilmer Belts.

FREE... hooks supplied with any assortment of 10 or more Gilmer Belts.

Got a copy of Gilmer's 1937 Belt Catalog? This "most usable belt catalog ever issued" is FREE. You need it. Send now.

Name .....

Address .....

L. H. GILMER CO., Tacony, Philadelphia

The Oldest Firm of Rubber Fabric Belt Specialists

ALCO Known wherever refrigerants are controlled

3 Models Added to Apex Washer Line

CLEVELAND — A new spinner model and two wringer models have been added to Apex Rotarex Mfg. Co.'s washing machine line.

Known as model 221, the spinner washer is streamlined in design, has an 18-gallon capacity, dome-shaped tub, washboard sides, patented quick-drain bottom, and an Apex "double-dasher" medium-size cast aluminum agitator. Finish is all-white, with aluminum controls.

The spin dryer has a removable basket, and a high center cone distributes the weight of the clothes. Vibration is reduced by using the drive shaft above the center of gravity.

A sterilizing rinse drives filtered water through into the revolving spin dryer, eliminating hand rinsing.

Other features of the spinner washer include an electrically welded chassis, machine-cut gears running in oil throughout the mechanism, balloon type easy rolling casters, and heavy-duty splash proof motor. Retail price of the spinner type model is $139.95.

Crosley Introduces One New Savamaid Washer Model

CINCINNATI — Crosley Radio Corp. has added a new model to its line of Savamaid electric washers.

Known as Model H-710, the washer has an 18-gallon porcelain enamel tub, with aluminum agitator, submerged-type sealed transmission, permanently lubricated heavy-duty motor, and rubber-mounted electrically welded chassis.

The washer is equipped with Lovell wringer with end-lever safety release, and 12 inch by 2 inch rolls.

Finished with three coats of porcelain enamel inside and out, the tub is 13 inches deep and 22 inches in diameter. It has a Galvannealed steel lid and rubber edge ring. The three-wing aluminum agitator is removable.

Nebraska-Iowa Norge Men Hold District Convention

OMAHA, Neb.—Two hundred and fifty Norge dealers in the Nebraska and Iowa territory recently met in a district convention at the Paxton hotel in Omaha to discuss future merchandising plans.

E. J. Neller, general sales manager for the Norge division of the A. Y. McDonald Co., Omaha, presided at the sessions. Other speakers were, E. R. Lovegreen, W. E. Day, Will Bailey and W. A. Denzer, factory officials.

Increased Instalment Selling Hasn't Impaired Business Stability, Credit Survey Shows

NEW YORK CITY — Although credit and instalment selling, as opposed to retail cash selling, has increased sharply in the past few years, this increase in no way threatens general business stability, is the conclusion of The Standard Statistics Co. in a recent report based on an annual retail credit survey which included 1,920 credit-granting stores in 88 cities of the U. S.

In 1936 cash sales reveal a decrease of 1.2% from those in 1935, open credit sales an increase of .01%, and instalment sales an increase of 1.2%.

Submitting these figures as accurate, though not guaranteed and indicative of the general trend in all types of business, Standard Statistics interprets them to show that there is no reason for alarm at the so-called disproportionate growth of credit sales.

Worried about the "rising tide" of instalment sales? Here are some comforting facts, the result of a survey of 1,920 stores in 88 cities, which indicate that retail credit sales in 1936 were "neither excessive nor dangerous."

"There can be no doubt whatsoever," the report states, "that there has been a trend toward more liberal retail credit terms during late years. There has been a tendency to reduce, or even eliminate, the down payment; the large volume of low-cost money has led to a reduction of carrying charges; the length of the credit term has been extended; and many retailers have adopted the policy of selling 'soft' or non-durable merchandise (clothing, etc.) on an instalment payment basis."

The responsibility for this trend, the report points out, has been attributed to various sources. Some observers claim that it originated with the makers of mechanical refrigerators who, by offering easy terms on their product, forced department stores and others to offer similar terms in order to compete effectively.

Others believe that the huge demand for automobiles has been the powerful factor in making for easier credit terms.

Other factors noted include banks, with their policy of establishing personal loan divisions which are paid in instalments; the FHA home modernization loans repaid in instalments; and the increase in the exchange of credit information, making it possible for retailers to examine credit risks at less expense and with more accuracy.

To support the contention that such concern is unwarranted, the report quotes as follows from the census statistics it has gathered.

"Of total retail sales in 1929—$49,000,000,000—credit sales were $17,000,000,000, or 34%. With the onset of the depression, retail sales in 1933 totaled $25,000,000,000, a decline of 49%, while credit sales were $7,000,000,000, a decline of 59%.

"Since that time, however, the increase in credit sales has been sharper than the gain in total retail sales. The latter are established at $36,000,000,000 for 1936, an increase of 47% as compared with 1933; while credit sales are estimated at $12,500,000,000, a gain of 79%.

"In other words, the volume of credit sales last year was relatively as great as it was in 1929. But this is not necessarily unfavorable, nor does it imply unsound economics, since country-wide purchasing power last year was within 7% of the 1929 total.

"It can be conservatively stated," the report continues, "that as far as the vast majority in this country is concerned, income rose to the 'essential' level some time back in the recovery movement.

"There is strong evidence of this in the fact that four of the nation's largest retail grocery chains showed a combined sales increase last year of only 2.5%.

"Thus, the more recent gains in retail trade have been largely accounted for by heavier purchases of non-essentials. And since the proportion of these sold on the instalment-payment basis is always greater than that on strictly necessary goods, it is entirely natural that instalment sales should rise more rapidly than the total volume of sales."

Not only has the rise in credit selling been commensurate with a total rise in the retail selling business and with an increase in general purchasing power, but statistics of individual businesses included in the statistics show that after reaching the 1929 peak, credit sales are stabilizing themselves and are exhibiting but slight fluctuation.

Figures from the home appliance business show that 1936 cash sales reveal an increase of .07% over those of 1935, credit sales show a decrease of .01%, and instalment sales show a decrease of .06%. This is about average for the 15-odd businesses included in the survey.

In answer to those who feel credit selling inherently bad, the report adds:

"Despite the increase in the proportion of credit sales, the experience with these accounts was entirely satisfactory. Customers buying on open-credit, through regular charge accounts, paid their accounts an average of every 64 days, compared with 66 days in 1935.

"Instalment accounts were liquidated on the average of seven months and one day, compared with seven months and six days in the preceding year. Small as these changes may be, they are in the right direction.

"It is clear," the report concludes, "that retail credit sales in 1936, whether of the open-credit or instalment type, were neither excessive nor dangerous. Any claims that credit sales in 1929 were excessive or that instalment selling at that time added greatly to the intensity of the depression are controverted by the fact that the depression experience with instalment paper was definitely favorable. The dire predictions made regarding the prospective fate of instalment sellers and those handling these credit instruments were not borne out."

30% More Earnings with FRICK Refrigeration

The four new trawlers of the "Forty Fathom" Fleet will each carry 100,000 pounds larger catch because the fish are protected by a unique combination of melting ice and Frick Refrigeration.

It's equally possible that your business can show better profits with the aid of Frick Refrigeration. Let our nearest Branch or Distributor show you how.

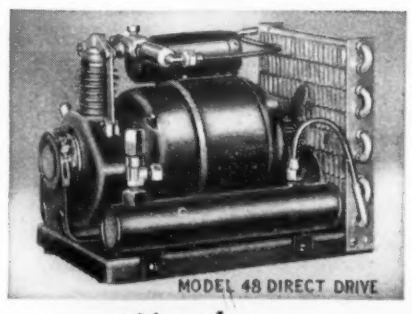
DEPENDABLE REFRIGERATION SINCE 1882

FRICK CO.

WAYNESBORO, PENNA. U.S.A.

KELLOGG 1/6 H.P. DIRECT DRIVE DOMESTIC CONDENSING UNIT

Backed By— —a good reputation!



The Kellogg Direct Drive Household Condensing Unit represents the accumulation of thirty years of experience in the manufacture of compressors. In addition to being vibrationless, compact in size and quiet in operation, it is particularly known for its efficiency and low operating cost.

Prompt deliveries. Replacement purposes—either SO_2 or CH_3Cl.

write for a complete catalog

KELLOGG COMPRESSOR & MANUFACTURING CORP.

300 Humboldt St. Rochester, N. Y., U. S. A.

Appliance-Selling Drug Firm Opens New Quarters

PEKIN, Ill.—Along with a healthy volume on sunburn lotions, colored glasses, sodas, sundaes, drugs, and other supplies, Hackler Bros. drug store here has been doing a prize-winning sales job on its line of General Electric refrigerators, ranges, washers, and air-conditioning equipment.

For the past two years Hackler Bros. has won the General Electric Sweepstakes and Presidential Campaign for the district, according to R. T. Cragg, sales promotion manager of R. Cooper Jr., Inc., Chicago G-E distributor.

During the three-day opening of the firm's new air-conditioned drug store, 20,000 persons visited the store, and its appliance sales included 23 refrigerators, three ranges, two washers, one ironer, and one air-conditioning unit.

Prefacing the opening, the store ran five pages of advertising in local papers. A double-spread insertion was given to its G-E appliances and air-conditioning.

As a special sales-building feature at the opening, certificates good for $10 on a G-E refrigerator, and $5 on a range or laundry equipment purchased within 30 days, were available to anyone visiting the store. Demonstration for air-conditioning prospects was provided by the store's own system.

Mrs. Adelaide Fellows, R. Cooper Jr., Inc. home economist, gave cookery demonstrations for range prospects during the three-day opening event.

Two Hackler drug stores, owned by John and Roscoe Hackler, have been in operation here for the past eight years, in which time the brothers have steadily built up a good business volume on both appliances and drugs.

Arrow Co., Houston, Moves To New Location

HOUSTON, Tex.—Arrow Refrigeration Service, dealer in Stewart-Warner household refrigerators and Williams Ice-O-Matic commercial condensing units, and distributor for Quillen Brothers Commercial Refrigerator cases in 16 south and southeast Texas counties, has moved to new headquarters on Louisiana street. The firm was organized by H. L. Roper and J. E. Bammell, both of whom have been in the refrigeration business here for over 12 years.

Mich. Associations To Confer on Fair Trade Contracts

LANSING, Mich.—Representatives of appliance dealers associations all over the state will gather here sometime this month to work out a statewide operating agreement under the Michigan fair trade act, according to Carl Lass, executive secretary of Detroit Appliance Dealers Association.

Each of the various dealer groups throughout the state will formulate an operating agreement of its own before the meeting here, and the final state-wide code will be drawn up from these agreements and the discussions and suggestions of dealers attending the meeting.

The agreement will cover such questions as trade-in allowances, advertising practices, and resale prices.

Crossley, Anderson Head Apex Districts

CLEVELAND—W. J. Crossley has been appointed district manager of Apex Rotarex Corp. in Tennessee, and J. J. Anderson, Apex district manager in Florida, has been transferred to the Columbus, Ohio territory.

Mr. Crossley, an oldtime member of the Apex retail sales force and later an Apex wholesale salesman in North Carolina, returns to the Apex organization as Tennessee district manager after an absence of eight years.

G-E Sales Billed Increase 43% for 6 Months

SCHENECTADY—Sales billed by General Electric Co. during the first six months of 1937 amounted to $171,076,645, compared with $119,273,388 during the corresponding period of 1936, an increase of 43%, according to an announcement by Gerard Swope, president.

Profits available for dividends for the six-month period amounted to $26,293,604, compared with $16,592,324 for the first six months of 1936, an increase of 58%. This six months' profit is equivalent to 91 cents a share of common stock, compared with 58 cents a share for the same period last year.

A dividend of 80 cents per share was paid for the first half of this year, as compared with a 50 cent-per-share dividend paid during the corresponding period in 1936.

11 New Jersey Salesmen Earn Havana Cruise

NEWARK—Eleven district salesmen of the Public Service Electric & Gas Co. have sold 60 or more Kelvinator refrigerators to earn a berth in the utility's 10-day all-expense trip to Havana.

Those who have qualified include: A. J. Pastorini, W. L. Adolph, L. J. Carfora, J. F. Slater, J. J. Compton, Philip Wolowitz, Sheridan Gersten, George Brown, R. J. Rochford, C. B. Tornow, and H. J. Hodge.

With the exception of W. L. Adolph, all of these salesmen earned a similar cruise in 1936, sponsored by Kelvinator Corp.

Connelly Displays Lines At Seattle Show

SEATTLE—Arranged to represent a modern department store the F. B. Connelly Co. display at the Northwest Furniture Show held here recently included grouped showings of the various products distributed by the company in this northwest territory.

In the Connelly exhibit were Grunow refrigerators and radios; American Beauty washers, ironers, and sewing machines; Great Western stoves; Universal electric ranges and vacuum cleaners; Ohio circulating heaters; Bird floor coverings; Sapolin paints, and other merchandise.

W. R. McCurdy, Connelly's general sales manager, headed the staff of nine salesmen which took charge of the display.

General Tire to Make Gaskets in Factory At Wabash, Ind.

WABASH, Ind.—Gaskets and other rubber and synthetic products used in refrigeration, air conditioning, and allied industries will be among the products manufactured by General Tire & Rubber Co.'s new plant here as soon as the plant is placed in full operation, according to W. O'Neil, president.

Machinery still is being installed although the plant has been operating on a limited scale for the past several months. Machinery and equipment will occupy a major portion of the 228,669 sq. ft. of floor space in the new plant. All buildings are constructed of brick and steel and are located on a 30-acre tract of land.

Some 5,000 different articles will be manufactured here when the plant is in full operation, according to Howard M. Dodge, general manager. He said that the plant will have 15 departments and should eventually employ 1,000 men, although only about 175 persons are on the plant payroll at present. Anticipated annual production volume of the completed plant has been placed at $5,000,000.

Mr. Dodge declared that the application of rubber to processes and products of various industries is increasing by leaps and bounds. He stated that General Tire & Rubber Co.'s new plant was equipped to develop any type of rubber or synthetic material. The company also expects to enter the plastic products field.

NEW IDEAS IN DOORS...

—make modern display refrigerating more modern!

"UNBELIEVABLE!" That's what manufacturers say when they examine the engineering features of the new "Loxit" door units, (doors—rails—jambs), they realize suddenly that LOXIT COSTS NO MORE THAN ORDINARY DOORS.

Consider, for example, these Loxit improvements: 1. *Locked-in, lift-out doors.* 2. *Tightly-closed overlap.* 3. *Reduced air leakage.* 4. *Lighter weight.* 5. *Greater structural strength.* 6. *Roller bearings.* 7. *Shock-absorbing jambs.* 8. *Quiet closure.* No wonder "Loxit" doors have such enthusiastic preference.

Wide Range of Sizes

Ace "Loxit" Hard Rubber Door Units (doors, rails, jambs) are made in many sizes to fit regular display cabinet types. Storage and service doors, glazing strips, trim, etc. Manufacturers: write for details and prices.

AMERICAN HARD RUBBER CO.
11 Mercer St., New York, N.Y.—Akron, O.
111 West Washington St., Chicago, Ill.

ACE "LOXIT" PATENTED DOORS

A GALVANIZED SHEET YOU CAN PAINT *Immediately*

Here's important news for users of galvanized sheets.

A revolutionary new sheet has been developed by Parker chemists and Armco metallurgists which needs no etching or weathering before painting. You can paint it immediately after fabrication and the paint will hold firmly without blistering or peeling.

Forming qualities are unaffected, and soldering practices remain practically unchanged. This new galvanized coating has a unique surface film that prevents the zinc from coming into direct contact with the paint, thus preserving the paint's flexibility and lengthening its life.

Parker and Armco research have given you the long sought answer to your problem of immediately painting galvanized products or construction.

These new galvanized sheets are now being supplied by the American Rolling Mill Company under the name of Armco "Paintgrip". Write for complete information.

PARKER RUST-PROOF COMPANY • 2197 E. MILWAUKEE AVE. • DETROIT, MICH.

Ask for These Books

For more than 22 years, this company has devoted its entire time, talent and energy to the improvement of rust-proofing methods. New books describing the Parker Processes are available to manufacturers and technical men. Send for your copies.

PARKER *Processes* CONQUER RUST
BONDERIZING • PARKERIZING

Twin Refrigerants INSTANTLY AVAILABLE

EXTRA DRY ESOTOO

V-METH-L

IN EVERY PART OF THE WORLD

ESOTOO and V-METH-L are the refrigerants preferred by refrigerating engineers and service men for their superior quality. This world-wide recognition of superiority can only be the result of true excellence in purity and dependability.

Unsurpassed faculties for shipping ESOTOO and V-METH-L to all parts of the world assure prompt delivery.

If you have a particular refrigerating or air-conditioning problem on which you would like assistance, a letter will enlist the aid of our experts.

VIRGINIA SMELTING CO.
WEST NORFOLK, VIRGINIA

AIR CONDITIONING AND REFRIGERATION NEWS

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Subscription Rates
U. S. and Possessions, Canada, and all countries in the Pan-American Postal Union: $4.00 per year; 2 years for $7.00. All other foreign countries: $6.00 per year. Single copy price, 20 cents. Ten or more copies, 15 cents each; 50 or more copies, 10 cents each. Send remittance with order. Notice: Please do not pay money to strangers claiming to represent this paper. We employ no subscription solicitors. Send orders and remittances by mail.

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ALFRED JONES and JAMES MCCALLUM

R. T. CARRITHERS, *Advertising Mgr.*
HELEN K. GILMORE, *Asst. Adv. Mgr.*
JAMES B. SMITH, *Asst. Adv. Mgr.*

JOHN R. ADAMS, *Business Manager*
ROBERT P. NIXON, *Asst. Business Mgr.*
JEAN H. ADAMS, *Subscription Manager*
LOLA E. DEW, *Circulation Manager*
WINIFRED MERSON, *Spec. Representative*

Advertising Representatives:
Lewis & Noelle
612 N. Michigan Ave., Chicago, Ill.
Superior 8550

Member, Audit Bureau of Circulations
Member, Associated Business Papers

VOL. 21, NO. 15, SERIAL NO. 438
AUGUST 11, 1937
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How High Can Prices Go?

QUESTION of the hour in the household electric refrigeration business is: How high can prices go in 1938 without materially affecting volume?

One hears it discussed at conventions of distributors, at conferences of manufacturing executives, in conversations with dealers, and wherever two or more men identified with the refrigeration industry can get together. Nobody claims to have the answer.

That retail prices on 1938 model household refrigerators will be higher than they have been for several years seems to be an accepted eventuality. Steel, motors, controls, insulation, copper, aluminum, labor and taxes are all up over last year.

Costly to Manufacture 1937 Models at Present Prices

Fact is, two or three of the manufacturers who are still in production on 1937 models find themselves in a bit of a jam right now. The materials contracted for having run out, they now find it necessary to purchase new materials, parts, and supplies at considerably advanced prices. This, coupled with increased wages, is making further production costly.

Hence they have cut out promotional efforts on current lines; although they have not followed the automobile makers' suit and raised prices on present models.

Retail Lists May Go Up $12 to $20 Per Unit

Just how high retail prices will be raised in 1938 is the question that is bothering practically all manufacturing executives at the moment. Those manufacturers who assemble a considerable portion of their refrigerators say they will have to up prices at least $20 per box in order to make a profit in '38. Larger makers, with facilities for producing almost every component of their units, feel that raises of $12 to $15 may be sufficient.

But even more worried than the manufacturers are the distributors and dealers. True, the public is being educated to expect higher prices on almost everything. But, say some distributors, there is evidence of a revolt against the current trend toward a higher cost of living. Buyers' strikes may occur in some localities; family and expenditures are likely to be diverted toward those products and industries which do not raise prices—or, at least, do not up them very much.

Public Has Been Getting Unusual Refrigeration Values

On the other hand, proponents of a substantial jump in retail quotations on 1938 household refrigerators argue that for several years refrigerator prices have been lower than warranted. In other words, the public has been getting more than its money's worth.

Competition has been so intensive that selling margins have been cut very low; nor have many manufacturers reported sizeable profits. Department stores are crying for higher mark-ups; so are many distributors and dealers. And many retail factors report that refrigerators can be sold in great volume even if list prices go up as much as $25 a unit.

Acceptance of Automatic Refrigeration at High Point

Only time and experience can give the answers to these problems. It is to be expected that 1938 will see one of the hottest between-industries competitive races for the consumer dollar that has ever been run in this country. And that should be kept in mind when making up price schedules.

Public acceptance of automatic refrigeration is now taken for granted. So is high sales volume. And no matter whether prices go up $10 or $25 a box, household refrigeration should still be a fine business in 1938.

Allowances for Advertising

IN any study of trade discounts on appliances, the matter of advertising allowances should not be overlooked. It is in this portion of the *actual* discount that the most leeway can be had in making discounts more flexible. And no part of the specialty selling formula, as applied to appliance merchandising, is so complicated. It is seldom that two manufacturers agree on the method of setting up allowances of this nature.

That the rigid discount system is open to criticism for unfairness in specific instances is granted by most students of specialty selling. However, by manipulation of advertising allowance funds—grants from which are subject to a certain discretion upon the part of sales executives—some of the unfair aspects of the discount system can be alleviated and counterbalanced.

Credit for commendable and extraordinary promotional effort is frequently granted in terms of prizes and honors; credit of a more tangible manner can be extended through advertising allowance grants.

Manufacturers Match Dealer Advertising Appropriations

Most manufacturers withhold payment of advertising allowances until the end of the year, fiscal or calendar. An arbitrary figure—say, 2 per cent—is placed on each unit as the advertising allowance. At the end of a year, the dealer is given a rebate equal to 2 per cent of the retail price of all units he has purchased.

This is the basis of the plan. It is, however, subject to a great many limitations. First of these is the "matching" idea. Manufacturers generally pay 50 per cent of the cost of local newspaper advertising; the dealer must put up the other half.

In many cases the dealer can obtain a lower rate on such advertising; if it were placed by the manufacturer, the latter would pay the "national" rate. But in any event, a strict 50-50 accounting is made by the manufacturer before the allowance is granted.

Advertising Allowances May Be Applied to Direct Mail, etc.

Some manufacturers permit the advertising allowance to be applied toward the purchase of direct mail pieces, outdoor posters, electric signs, and prospect gifts. Others set up a special fund for this purpose, an additional advertising allowance, which is granted only if these specified services are employed.

Some manufacturers make a small profit on their direct mail and promotion specialty services, so as to help their promotional departments "pay for themselves." Others supply such services at cost. Still others pay up to 50 per cent of the cost of such materials—charging their contributions off to the advertising allowance fund.

Additional Allowances for Orders Equivalent to Quota

Whether or not such items as local radio advertising, use of movies and slidefilms, the purchase or renting of display trailers, and expenditure for exhibits may be charged against the advertising fund are matters on which there is no uniform practice.

There is a trend, however, to include more and more items in the group which can be charged to the advertising fund—providing, usually, that the dealer puts up an equivalent amount in each case.

Rccently the practice of setting up an additional advertising allowance—say, one-half of one per cent—as a reward for meeting quota has been tried by a few manufacturers. Some call this a "convention allowance," and grant it to the distributor or dealer who places an order for his entire quota at the convention where new models are shown.

Rebates Reward Actual Dealers, Penalize Indigent

It should not be assumed that these additional discounts in the form of advertising allowance rebates are always granted. True, the manufacturer does set aside an allowance fund equal to a specified percentage of the retail price of all units sold during the year; but rebates to dealer or distributor are granted out of this fund only in case said dealer or distributor has met all the conditions and requirements stipulated.

Thus active dealers can be rewarded, and indigent organizations penalized, by the operation of such funds. Those who make the fullest use of their opportunities under these conditions are almost invariably the ones who get the most business, and usually the ones who ring up the best profits.

QUOTED

What Can I Do To Make Them Think?

WHEN an employe sticks his head in the door and asks a question that one second of thought would have answered for him, does it "burn you up?"

When a man in the machine shop "gums" the works on an important job because he "didn't know," do you see red?

When you have to spend all your time thinking out shop problems or finding short cuts, are you doing your job or someone else's?

The day when one or two men can do all the thinking for an organization has definitely passed. Business has grown too complex, too intricate, for the heads of a business to be able to do the thinking on every individual operation throughout the plant. Important phases of management, selling, and finance may command the bulk of your business hours. The thinking you are doing is along broad creative lines. You are the architect building a business; your key employes are the contractors and subcontractors.

Yet, one idea from an employe—one well thought-out suggestion—may profitably improve the whole design of your business structure. How can you get these men to offer ideas and suggestions? How can you make them think?

Have you ever stopped to analyze what makes you think and what has influenced the new ideas you have developed for your firm during the past 10, 15, or 25 years?

Suppose in all that time you had never seen a business paper, had never read an article related to your business, never analyzed your production setup in comparison with others described from time to time, never picked up a short cut or money-saving idea from a trade paper, and never had looked at a helpful piece of direct mail advertising. In short, suppose during your entire business career you had never done any reading related to your business. How your thinking?

Would your plant and methods be do you suppose it would have affected as modern as they are right now? Would you know all the things you know today if you had not done your share of reading during those years of building?

The answer is obvious. Reading does exercise a powerful influence on our thinking. It stimulates us from outside of ourselves. It pours ideas into our minds that tumble around and take shape, to our benefit and profit. It spurs us on, shows us new and easier ways of doing things, and encourages us to think and apply the things we read.

What's sauce for the goose is sauce for the gander, yet how many of your key men realize, as you do, the importance of reading publications that deal with your business and their jobs?

Would you really like to know? Then take time out to make a little survey. Ask each key man, right down to your foremen, about his reading habits. Find out what business papers *he* subscribes to, and also, what papers he *reads* on company subscriptions. If you are successful in getting frank, honest answers, you will probably find that reading and progress and efficiency go hand in hand.

"What can I do to make them think?"

It's one of the most vital questions that any executive can ask himself. The answer will help him to multiply his own efforts down through his supervisory force.

There are five steps that you can take to bring about more original thinking in your organization:

1. Cut the red tape. In many industrial organizations today are actual barriers that prevent key men from receiving business publications, direct mail literature, and sales information. Intentionally or unintentionally, these barriers of red tape discourage circulation-building efforts of trade publications, as well as the distribution of information through the mail. Unless the men can be exposed to this type of material, how can you expect them to be bitten by the bug of a new idea?

So cut the red tape. Many progressive firms have already done this. When the names of certain individuals are requested for legitimate mailing lists, give them gladly. It won't hurt you; it will help you.

When a worthwhile business paper which is sincerely trying to do a helpful job for industry endeavors to win some circulation in your plant, remember you reap the harvest from the seeds they plant.

2. Encourage the reading of business papers. Talk with your men individually about the paper or papers they should be reading to help them do a better job. You can't *drive* them to it, but you can *lead* them to it by showing them how it will help them to get ahead.

Encourage them to subscribe for some good publication and have it sent to their homes. A man will be much more likely to become a thorough reader if he gets a magazine at home. Then, too, an individual subscription gives a man a feeling of importance and this stimulates his thinking to justify that feeling.

Above all, try to dispel the guilty feeling which many a man still has if the boss walks in when he has a business paper open on his desk. Far better to have him exposed to new ideas than sweating away at his job eight hours a day with no time to think how his department could be improved.

3. See that business papers circulate and are read. It is, of course, impossible for each individual to subscribe to all the business magazines he should see, so it is necessary to fall back on the "check and pass on" system. Too often, however, it becomes just that—with the readership practically nil.

One executive solves this by asking questions of his supervisory force at meetings concerning articles appearing in current issues of these circulated publications. It keeps the men on their toes and gets the publications read.

4. Ask for suggestions. Many firms employ the suggestion box with considerable success. The bait is sometimes recognition in the company magazine, a cash prize or a bonus based on the value of the idea to the firm. This is always a strong incentive to creative thinking. A man can visualize how he can profit and, don't forget, his reading will help to make his suggestions more worthwhile.

5. Send them visiting. There is nothing to equal a trip to another plant for starting the old idea mill working. Send your men visiting once in a while and they will come back with new enthusiasm and a keener appetite for their jobs. Don't neglect the opportunity that tradeshows and expositions offer to bring your men in contact with new ideas and new equipment.

There are many other things you can do, of course, to get your men to think, but these five suggestions give you a concrete program that can be made to pay dividends.

Start the ball rolling now by checking the magazine readership in your plant. Get your men exposed to more reading for more thinking.

The story is told of a company executive who called in an advisory expert to solve a certain production problem. The answer was given promptly, and the executive readily paid $1,000.

Later, the expert laughingly told a friend that he had secured the information that provided the answer from a certain business paper and that the particular issue containing this information was lying (unread) on the executive's desk at the time of the interview.—Robert F. Heller in *Steel*.

To Cool or Not to Cool

While Congress battles on, there are some individual battles going on about the air-cooling systems hereabouts. Some old-fashioned folk who don't believe you should interfere with the seasons as the Lord has decreed them have discovered that the one new building in the Government that has no air-conditioning system is the Public Health Service.

There is one section of the Public Health Service Building, however, which is air-cooled. It is the dental clinic, equipped at a cost of $40,000 because one of its patients felt that a man in a dental chair has enough to worry about without suffering from the heat.

The patient was the Secretary of the Treasury, Henry Morgenthau. The Public Health Service is under the Treasury, and Mr. Morgenthau's teeth have been under treatment by the Public Health Service.—H. R. Baukhage in *The Detroit News*.

Conference to Cover Low Temperatures In Food Handling

BOSTON—Application of low temperatures in food handling and treatment, canning, and advances in dairy manufactures will be discussed at a conference on food technology to be held Sept. 14 to 17 by Massachusetts Institute of Technology under the direction of its department of biology and public health.

Speakers at the conference will include Dr. Rudolphe Plank, internationally known refrigeration authority from Karlsruhe, Germany, and Dr. Maurice Piettre, of Institut International du Froid, Paris. Dr. Franklin Kidd, of Low Temperature Research Station, Cambridge, England, also may be present. Dr. Plank was among the earliest experimenters with quick freezing.

Representatives of federal and state services, officials of large food industries, and research workers from many centers of activity in food technology have participated in preparation of the conference.

Food manufacturers, research workers, and all others interested in the scientific advancement of food engineering are invited to attend. A special invitation has been extended to members of the American Society of Refrigerating Engineers, as meetings of the A.S.R.E. council and Boston section are scheduled to be held here during the conference.

Sherer-Gillett Making 29-Ft. Reach-in Box

MARSHALL, Mich.—Sherer-Gillett Co. is preparing to distribute its new reach-in refrigerator which has a gross capacity of 29½ cu. ft. and a usable shelf area of 33 sq. ft., and which is optionally furnished with blower-type coil.

Compressor may be installed in the space provided in the base of the cabinet or may be arranged as a remote installation.

Scherer Manages Holyoke Plant for Worthington

HARRISON, N. J.—W. H. Scherer has been appointed manager of Worthington Pump and Machinery Corp.'s plant at Holyoke, Massachusetts, it is announced.

Mr. Scherer goes to Worthington after 30 years with Westinghouse Electric & Mfg. Co., having been general superintendent of the Westinghouse East Springfield Works for the past 18 years.

Trippensee to Make Compressors, Beer & Water Coolers

(Concluded from Page 1, Column 2)

Standard Reamer & Tool plant at 2620 Elmwood Ave.

The Trippensee compressor is a 2-cylinder unit with a 1½-inch bore and 1⅛-inch stroke, and is capable of developing 500 r.p.m. It has a V-belt drive, and can be used with either methyl chloride or sulphur dioxide refrigerant.

The company believes that this compressor can advantageously be used in domestic refrigerator cabinets up to 15 cu. ft. capacity, water or beer coolers delivering 8 gallons per hour, 6-hole ice cream cabinets, or 6-ft. delicatessen counters.

As special features the compressor claims a patented bevel seal designed to reduce the possibility of leakage, a patented type of cartridge-head valve, an automatic belt tightener, and a patented moisture and sediment separator which is said to absorb any moisture and collect any fine dirt which may get into the system.

Three markets for this compressor are foreseen by Trippensee officials: manufacturers of domestic refrigerators, many of whom do not make their own compressors; manufacturers of commercial refrigeration equipment; and the fast-growing replacement market. The company's prospectus points to anticipated monthly compressor sales of from 800 to 1,000 units.

Chief feature of the Trippensee beer cooler is that it employs the principle of direct cooling by using a 2-gal. reservoir connected directly to the tap. Beer cooled in this way is said to be kept at more even temperature than beer cooled by the coil system. It also is claimed that direct cooling eliminates the waste of beer which has become flat from remaining too long in warm coils or tubes leading to the tap.

A sight gauge indicates when a barrel is nearly empty, and the unit is designed so that a new barrel may be connected without loss of either beer or gas. The tap and cooling tank are manufactured separately from the compressor unit, so that the reservoir unit alone may be sold to beer dealers who already have a satisfactory compressor.

The water cooler, which is similar in design and operation to the beer cooler, is said to be suitable for cooling soft drinks also.

Two sizes of the self-contained unit conditioners are going to be produced, and are going to be made available with or without the compressor unit. Used without the compressor, these units simply cleanse, humidify, and recirculate the air. Under test, the larger unit, without compressor, raised the humidity in a 9 x 12-ft. room from 20 to 50% within 20 minutes. Only an electrical connection is needed with any model of these conditioners.

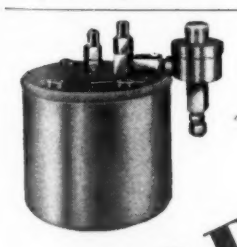
The large unit will retail for about $148, without compressor, and $199 with compressor, Mr. Trippensee stated.

Products of Trippensee Mfg. Co. have been designed largely by Mr. Trippensee, himself, and Melbourne E. Thompson, the company's chief engineer, who has been associated with Mr. Trippensee since 1925. An experienced mechanical and refrigeration engineer, Mr. Thompson has worked for D. V. Stratton, Inc., New York City; Lippincott Carwen Corp., Philadelphia; Nizer Refrigerator Corp.; Universal Cooler Corp.; and Central Machine Co.

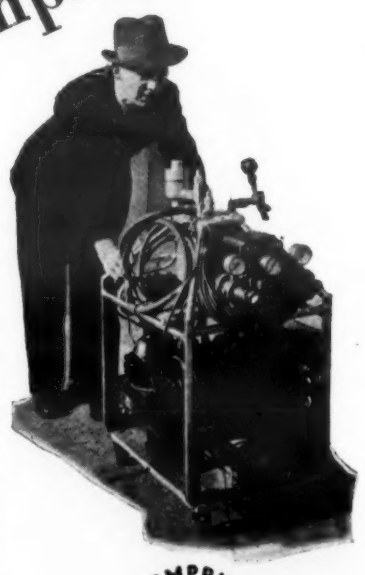
Reorganization of Trippensee Mfg. Co. was effected March 15, when the company was incorporated under Michigan law with an authorized capital of $250,000. Officers of the company, besides Mr. Trippensee and Mr. Thompson, are: Ward H. Peck, vice president and attorney; Albert E. Chesley, secretary; William F. Trippensee, treasurer and production manager.

The original Trippensee Mfg. Co. was organized by Frank J. Trippensee in 1907. It produced automobile bodies under this name until 1923 when it was merged with Everett Bros., Inc. to form Trippensee Closed Body Corp. Mr. Trippensee served as president of this concern until 1925, when controlling interest was purchased by Rickenbacker Motor Co.

In 1920, Mr. Trippensee organized Standard Reamer & Tool Co., becoming president of this company, and in 1929 acquiring sole ownership of the firm.



MORE BEER FROM EACH BARREL with the Temprite Cooler



BEER drawn from the Temprite Cooler has exactly the right collar and temperature—can be drawn without waste.

Hence, the tavern keeper can sell about 30 glasses more beer per half barrel—beer that would otherwise be wasted down the sewer. The beer tastes better, because properly cooled, with carbonation preserved.

When the tavern keeper finds this out, he wants Temprite equipment.

Use the Temprite Portable Demonstrator to show him.

TEMPRITE PRODUCTS CORPORATION
1349 East Milwaukee Ave., Detroit, Mich.

TEMPRITE INSTANTANEOUS

Write for Bulletin B-1

ORIGINATORS OF INSTANTANEOUS LIQUID COOLING DEVICES

SHELL AND TUBE CONDENSERS OF LARGE CAPACITY CONTRIBUTE TO BRUNNER'S OVER-ALL EFFICIENCY

Model W-1500
CONDENSING UNIT
Water Cooled

Brunner engineering has a reputation for effectively "gearing" design to service conditions. The Shell and Tube condensers of the large water-cooled Brunner units (7½ H.P. and over) illustrate this point. For in the larger installations, necessarily subjected to more severe demands, extra precautions must be taken to insure long range dependability... Brunner Shell and Tube condensers offer greater efficiency in this type of service; and due to the low pressure drop of both refrigerant and water (together with oversize connections) power consumption is appreciably lowered. Shell and Tube condensers are also easier to clean . . . are more attractive in appearance . . . and due to their extra weight and lower center of gravity, vibration is reduced to a minimum. Greater storage capacity for the refrigerant is also afforded, should it be necessary to pump down the system . . . But why not let us explain further? Send for the new Brunner Refrigerating Equipment Catalog describing Brunner units —air and water cooled—for installations ranging from 100 lbs. to 15 tons of refrigeration. Brunner Manufacturing Co., Utica, N. Y., U. S. A.

BRUNNER

BUILDS FOR Greater DEPENDABILITY

Philadelphia ASRE Discusses Need for Safety Code

PHILADELPHIA—Plans for the coming season were laid by the council of the Philadelphia section of the American Society of Refrigerating Engineers when it met recently under the direction of A. F. Saunders, chairman-elect.

L. A. Tucker, past chairman of the section was appointed head of the membership committee, and Charles R. Logan, another past chairman, was named as head of entertainment and reception activities.

The growing need for a uniform safety code in the city was discussed at length, with Sheridan Taylor, secretary of the Electrical Association, reporting on the code-making activities of his association. Mr. Taylor suggested that the local section of A.S.R.E. join with the Electrical Association in cooperating with the fire marshal's office in an attempt to formulate a satisfactory code.

Among those present at the meeting were: Cecil Bolling, recently elected vice president of the local section; H. M. Roberts, who continues as secretary-treasurer; Lee C. Leslie, chairman of the program committee for the coming year; and David L. Fiske, representative of the national society.

Truck Units' Success Leads To Sale of 8 More

SPRINGFIELD, Ill.—Permanently mounted in the truck garage, a commercial refrigerating system composed of Kold-Hold coils and a 2-hp. methyl chloride Williams Ice-O-Matic compressor is used by Capital City Ice Cream Co., local subsidiary of Beatrice Creamery Co., to refrigerate its two delivery trucks.

An order for eight additional compressors has been received by Stanley Bell, Springfield representative for the Williams Ice-O-Matic Co., from the Capital City company, which will have the units installed in its branch offices in central Illinois.

Michigan Curtis Outlet Holds Employe Picnic

DETROIT—Republic Refrigerator Sales & Service, Inc., General Electric appliance dealer and state-wide distributor of Curtis refrigeration equipment, recently held a picnic at Belle Isle for all employes and their families. About 70 persons attended.

Food and drink were served, and entertainment included individual and group singing as well as a performance by a magician.

Commercial Sales by Specialty Selling Texas Dealer Up

FORT WORTH, Tex.—Sales of commercial refrigeration equipment by the A. C. Rogers Co., Inc., dealership here, shows a 30% increase over last year, according to Bonham Rogers, head of commercial sales.

Although the firm recently has taken a number of air-conditioning jobs, its chief concern is with refrigeration, Mr. Rogers stated.

"Selling commercial refrigeration is closely akin to specialty salesmanship, while air-conditioning requires a more technical type of salesmanship," Mr. Rogers pointed out.

Servel Labor Policy Featured in August 'Nation's Business'

EVANSVILLE, Ind.—August issue of Nation's Business has an article based on the "industrial peace policy" of Louis Ruthenburg, president of Servel, Inc., makers of Electrolux gas refrigerators and Servel electric commercial and air-conditioning equipment.

In the article, President Ruthenburg is quoted as saying:

"The worker is far more interested in annual, monthly, and weekly earnings than the hourly rate; must be convinced that increased productive efficiency means permanent wage increases; must be assured of adequate provisions for safety, educational and recreation measures; guaranteed an impartial appeal from decisions of foremen, and protected against domineering straw bosses."

Kold-Hold-Frigidaire System Maintains Low Truck Temperatures

ST. LOUIS—Equipped with six "D-252" Kold-Hold coils and a 1½-hp. Frigidaire compressor, a streamlined commercial refrigerated trailer has been built by the Batavia Body Co. for Hydrox Ice Cream Co., local division of National Dairy Products Co.

In tests, the refrigerating equipment cooled the interior of the trailer from 28° F. to —20° F. in 18½ hours, and permitted the temperature to rise only 24° to 4° F. in 73½ hours.

During a 12-hour run on a regular delivery route, in which 16 stops were made, the trailer's interior temperature rose only 17 degrees from —20° F. to —3° F.

Water Coolers, Beverage Coolers, and Ice Cream Cabinets Build June Nema Commercial Total of 33,643 Units Well Above 1936 Level of 28,543 Sales

The following report of commercial refrigerating and air-conditioning equipment sales for June, 1937, were made to the Commercial Refrigeration Section of the Refrigeration Division of the National Electrical Manufacturers Association (Nema) by the following 15 companies:

Brunner Manufacturing Co., Carrier Engineering Corp., Crosley Radio Corp., Frigidaire Corp., General Electric Co., Gibson Electric Refrigeration Corp., Kelvinator Corp., Leonard Refrigerator Co., Merchant & Evans Co., Norge Corp., Servel, Inc., Uniflow Manufacturing Co., Universal Cooler Corp., Westinghouse Electric & Manufacturing Co., York Ice Machinery Corp.

	SALES FOR JUNE, 1937							
	Domestic		Canadian		Other Foreign		Total World	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1. Bottle Water Coolers—Complete	1,559	$ 101,494	3	$ 160	70	$ 4,762	1,632	$ 106,416
2. Pressure Water Coolers—Complete	5,633	556,670	20	1,595	112	10,851	5,765	569,116
3. Water Coolers—Low Side Only	209	11,704	.....	.....	6	405	215	12,109
4. Ice Cream Cabinets—Complete	3,733	576,057	329	38,175	93	14,236	4,155	628,468
5. Ice Cream Holding Cab. Only (Remote)	497	66,756	5	509	15	2,033	517	69,298
6. Bottled Beverage Coolers—Complete	4,619	420,108	400	20,522	147	11,947	5,166	452,577
7. Milk Cooling Cabinets (No High Sides)	194	12,922	.....	.....	12	747	206	13,669
8. Air Conditioners—Self-Contained	2,266	480,282	14	3,259	239	54,941	2,519	538,482
9. Air Conditioners—Floor Type (No High Sides)	493	139,480	1	123	20	5,034	514	144,637
10. Air Conditioners—Ceiling (Cooling Only—No High Sides)	514	97,526	2	1,088	45	5,476	561	104,090
11. Air Conditioners—Ceiling Type (Equipped for Heating—No High Sides)	86	48,432	1	405	8	4,240	95	53,077
12. Air Conditioners—Residential Type (No High Sides, Boilers, or Furnaces)	55	24,409	1	243	19	9,500	75	34,152
13. Condensing Units Less than ⅓ Hp.	3,409	206,186	58	3,871	710	18,007	4,177	228,064
14. Condensing Units—⅓ Hp.	3,046	243,652	65	5,523	382	31,778	3,493	280,953
15. Condensing Units—½ Hp.	2,045	213,077	58	6,987	210	24,311	2,313	244,375
16. Condensing Units—¾ Hp.	1,220	165,634	21	3,229	122	17,930	1,363	186,793
17. Condensing Units—1 Hp.	879	137,000	14	2,801	78	13,188	971	152,989
18. Condensing Units—1½ Hp.	513	106,347	5	1,631	64	13,579	582	121,557
19. Condensing Units—2 Hp.	322	74,756	3	738	27	6,360	352	81,854
20. Condensing Units—3 Hp.	299	83,989	3	643	40	10,451	342	95,083
21. Condensing Units—5 Hp.	228	104,928	.....	.....	13	5,446	241	110,374
22. Condensing Units—7½ Hp.	101	63,648	.....	.....	8	4,564	109	68,212
23. Condensing Units—10 Hp.	135	107,728	.....	.....	4	2,884	139	110,612
24. Condensing Units—15 Hp.	120	106,215	.....	.....	4	3,404	124	109,619
25. Condensing Units—20 Hp.	63	63,006	.....	.....	.....	.....	63	63,006
26. Condensing Units—25 Hp.	45	59,923	.....	.....	.....	.....	45	59,923
27. Condensing Units—30 Hp.	19	30,801	.....	.....	.....	.....	19	30,801
28. Condensing Units—40 Hp.	59	104,873	.....	.....	5	8,000	64	112,873
29. Condensing Units—50 Hp.	9	18,161	.....	.....	.....	.....	9	18,161
30. Total—Lines 13 to 29, Incl.	**12,512**	**1,889,924**	**227**	**25,423**	**1,667**	**159,902**	**14,406**	**2,075,249**
31. Total—Lines 1, 2, 4, 6, 8, and 30	**30,322**	.....	**993**	.....	**2,328**	.....	**33,643**	.....
32. Commercial Evaporators (Not reported Above)	4,746	156,116	299	8,594	753	29,980	5,798	194,690
33. Air Conditioning Evaporators (Not Reported Above)	343	78,196	.....	.....	8	5,730	351	83,926
34. Total Commercial & Air Conditioning	.....	**$4,660,076**	.....	**$ 100,096**	.....	**$ 319,784**	.....	**$5,079,956**

Nema Members' World Commercial Sales for 6 Months of 1937 Total 179,582 Units Valued at $26,004,738

	SALES FOR FIRST SIX MONTHS, 1937							
	Domestic		Canadian		Other Foreign		Total World	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1. Bottle Water Coolers—Complete	5,778	$ 353,434	11	$ 628	236	$ 18,156	6,025	$ 372,218
2. Pressure Water Coolers—Complete	17,716	1,696,495	62	5,571	156	54,658	18,294	1,756,724
3. Water Coolers—Low Side Only	969	68,618	7	361	30	2,069	1,006	71,048
4. Ice Cream Cabinets—Complete	21,159	3,321,911	1,088	126,939	1,034	120,572	23,281	3,569,422
5. Ice Cream Holding Cab. Only (Remote)	3,394	471,337	24	2,981	116	15,885	3,534	490,203
6. Bottled Beverage Coolers—Complete	29,861	2,629,905	597	32,273	605	48,504	31,063	2,710,682
7. Milk Cooling Cabinets (No High Sides)	1,440	92,009	2	147	71	4,641	1,513	96,797
8. Air Conditioners—Self-Contained	7,925	1,738,997	16	3,678	1,033	241,886	8,974	1,984,561
9. Air Conditioners—Floor Type (No High Sides)	2,002	753,182	1	123	131	36,707	2,134	790,012
10. Air Conditioners—Ceiling (Cooling Only—No High Sides)	2,286	374,757	3	1,178	257	33,807	2,546	409,742
11. Air Conditioners—Ceiling Type (Equipped for Heating—No High Sides)	458	252,068	21	7,608	24	12,455	503	272,131
12. Air Conditioners—Residential Type (No High Sides, Boilers, or Furnaces)	200	55,119	1	243	54	27,000	255	82,362
13. Condensing Units Less Than ⅓ Hp.	20,046	1,107,055	160	9,850	7,237	426,954	27,443	1,543,859
14. Condensing Units—⅓ Hp.	18,871	1,437,571	377	29,560	4,352	360,176	23,600	1,827,307
15. Condensing Units—½ Hp.	10,967	1,119,128	284	32,425	2,105	217,989	13,356	1,369,542
16. Condensing Units—¾ Hp.	7,065	952,325	142	20,347	1,048	148,738	8,255	1,121,410
17. Condensing Units—1 Hp.	5,602	868,006	113	20,644	807	138,069	6,522	1,026,719
18. Condensing Units 1½ Hp.	3,430	689,600	45	10,132	421	89,734	3,896	789,466
19. Condensing Units—2 Hp.	1,632	376,631	16	3,566	1,328	70,504	2,976	450,701
20. Condensing Units—3 Hp.	1,505	436,483	14	3,039	326	79,678	1,845	519,200
21. Condensing Units—5 Hp.	1,195	466,123	5	2,029	49	21,080	1,249	489,232
22. Condensing Units—7½ Hp.	576	369,873	1	683	36	21,166	613	391,722
23. Condensing Units—10 Hp.	629	491,417	2	1,622	50	37,296	681	530,335
24. Condensing Units—15 Hp.	566	520,517	.....	.....	30	25,743	596	546,260
25. Condensing Units—20 Hp.	374	426,429	.....	.....	11	12,213	385	438,642
26. Condensing Units—25 Hp.	278	370,532	.....	.....	.....	.....	278	370,532
27. Condensing Units—30 Hp.	87	131,635	.....	.....	1	1,400	88	133,035
28. Condensing Units—40 Hp.	110	196,917	.....	.....	16	25,600	126	222,517
29. Condensing Units—50 Hp.	36	70,338	.....	.....	.....	.....	36	70,338
30. Total—Lines 13 to 29, Incl.	**72,969**	**10,030,580**	**1,159**	**133,897**	**17,817**	**1,676,340**	**91,945**	**11,840,817**
31. Total—Lines 1, 2, 4, 6, 8, and 30	**155,408**	.....	**2,933**	.....	**21,241**	.....	**179,582**	.....
32. Commercial Evaporators (Not Reported Above)	24,238	735,431	1,552	49,421	6,018	186,411	31,808	971,263
33. Air Conditioning Evaporators (Not Reported Above)	2,235	564,773	2	120	39	21,863	2,276	586,756
34. Total Commercial & Air Conditioning	.....	**$23,138,616**	.....	**$ 365,168**	.....	**$2,500,954**	.....	**$26,004,738**

CONCENTRATED FLAME
with the
PREST-O-LITE TORCH
Trade-Mark
you can avoid damage to adjacent fixtures...
PREST-O-LITE GAS is readily obtainable through thousands of Prest-O-Lite Exchange Service Stations.

Prest-O-Lite Torches are adaptable for all soldering, heating and light brazing where accurate control of the flame is necessary for good workmanship. The concentrated flame can be applied to a small area on one side of the fitting—opposite from the solder—and without damage to adjacent fixtures.

Your *Prest-O-Lite* jobber will gladly demonstrate how a *Prest-O-Lite* Torch will enable you to do jobs more profitably and quickly.

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Unit of Union Carbide and Carbon Corporation
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Dominion Oxygen Co., Ltd., Toronto

BRIDGEPORT *knows* BELLOWS

Why are Bridgeport Bellows and Thermostat Assemblies the permanent solution of many trying design problems of the refrigeration and allied industries?

Because their acknowledged superior performance as flexible seals, packless glands, expansion chambers, pressure diaphragms, thermostat members, etc., is the result of their inherently correct metallurgy and mechanical design . . . a reflection of Bridgeport's intimate knowledge of Bellows' characteristics and their application possibilities.

This knowledge is at your disposal. Write for Bulletin —12 Bridgeport Thermostat Co., Inc., Bridgeport, Conn.

Farm Equipment Displayed

MANCHESTER, N. H. — Public Service Co. of New Hampshire is sponsoring a state-wide tour of an all-electric trailer displaying electrical farm equipment and an electric kitchen.

Every Coil of
WOLVERINE
extra soft
Copper Tubing
for
refrigeration
IS
*Deoxidized
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that's why it's the best for your Job.
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WOLVERINE TUBE COMPANY
1411 CENTRAL AVE. DETROIT, MICH.

FOREIGN TRADE

Strohm Finds No Refrigeration In Borneo or Malaya; Cooling System Baffles Bahrein Arabs

By John Strohm

BRITISH NORTH BORNEO — Although this alleged spawning ground of all circus wild men is really much safer than a traffic infested city street, it as yet offers little market for refrigeration and air conditioning.

The two hundred Englishmen who dress for dinner in this jungle where Americans would wear overalls are but a handful as compared with the many Chinese, Malay, and Moros.

A fellow living on this isolated island wouldn't know whether or not Dizzy Dean was a hold-out when the season was half over, so naturally news of refrigeration and air conditioning hasn't arrived. But things are looking up—three villages have electricity now and another is planning on it. However, there are fewer Europeans in the island now than 20 years ago.

Not a Refrigerator In Sultan's Palace

JOHORE, Malaya—The Sultan of Johore was in London for the Coronation, I learned on visiting his palace in Johore-Bahru. I wondered what kind of a refrigerator a fellow like a Sultan would buy so I bribed a little chocolate barefoot boy, Ali, with 12 cents to show me through the place.

I saw the Sultan's bed which was the size of a wrestling mat, being eight feet square; I sat upon his satin-cushioned throne in khaki shorts; I visited the gymnasium-sized banquet hall and the pantry. No refrigerator did I see—a tip to the enterprising salesman.

In Which Strohm Interviews Mahatma Gandhi

WARDHA, India — Mahatma Gandhi sat on the floor in the corner of his mud-walled country hut, naked except for his loin cloth, and I sat on a tool box. He told me of the woes of his countrymen; of 300,000,000 villagers living on an average income of two and one-half cents a day; of British exploitation of a country rich in resources.

After this recital of the suffering and poverty, I didn't have the heart to ask him if the villagers could afford to buy refrigerators. Mr. Gandhi has retired to a tiny village in the country to live as the humblest villager as he works on his program for rural uplift. India would be a great place for air conditioning—an Indian woman fanned Mr. Gandhi throughout our interview, although his loin cloth left a maximum of epidermis exposed.

Mr. Gandhi is convinced that with a united will India could throw off "the British yoke" peacefully. If he cannot have independence without force, he would rather not have it at all, he said.

Standard Oil Cools 100 Employes' Homes

BAHREIN—High humidity and devilish hot weather the year around make air conditioning welcome in this Standard Oil city in the Persian gulf. The Bahrein Petroleum Co. has air conditioned nearly one hundred houses for its employes, and a big theater.

According to one employe the equipment worked too well at first, and the bedrooms got too cold to sleep without blankets. But now they know how to regulate them. A most surprised people were the Arabs who have been getting used to the heat after centuries of practice. They can't quite figure it out yet.

Lone American Deserts The South Sea Islands

SITANKAI, Sulu Archipelago — Copy writers for travel agencies draw pictures of romantic South Sea Islands covered with palms and untouched by a hustle-bustle civilization, designed to make the proverbial tired business man pant for a vacation.

For 10 years Perry Machlin, Spanish-American war veteran, has lived as king and owner of a two-acre palm-covered island, washed by the Sulu and Celebes seas and within 50 miles of Borneo. With his Moro wife he lives there alone, governing the Mores of the adjoining islands.

This is another in the series of articles by John Strohm, young journalist on a trip around the world, who is passing on to News readers tips about foreign market possibilities.

But he is moving out. He is 100 miles from communication with the outside world, news from the States is a couple of months old before he sees it, and a canned diet isn't too good—these are his reasons.

He says one of the things which has enabled him to stick it out that long was a big Electrolux refrigerator which he got several years ago. He really goes to bat for the kerosene-operated Electrolux — because it gives him food protection even though he has no electricity.

Air-Conditioned Sleeper Bus on Bagdad Run

NEWARK—The world's first air-conditioned sleeper bus is now traveling daily over a 600-mile roadless route on the burning sands of the Arabian desert. The 15-hour run leads from Bagdad through Damascus, to Beyrouth, Syria.

The Diesel-engine powered bus was made in Philadelphia and was air conditioned by Carrier Corp. It was shipped on Feb. 2 for regular desert transportation service, and also to enable engineers of Carrier affiliates in Iraq and Syria to test the possibilities of extending air conditioning into the domestic field.

The bus has upper and lower berth accommodations for 14 passengers and seating facilities for 24.

Refrigerating equipment is placed in the "tractor" part of the bus, while the air-conditioning apparatus is in the trailer. Flexible connections, similar to those on trains, are used to conduct the cooling medium.

The bus is insulated to reduce the inside temperature. Engineers say that heat is reflected from the corrugated stainless steel sides. Operated by the Nairn Transport Co., the bus crew includes two drivers and a steward.

Promotion Folder in 3 Languages Used By Chinese Refrigerator Manufacturer

TIENTSIN, China — Three languages—English, Russian, and Chinese—are used in two pamphlets of 10 and 12 pages, respectively, recently issued by "Rin-Tai" Refrigerator Mfg. Co., 204 Taku Rd., to promote its "Polar" refrigeration line.

Claiming that the Rin-Tai plant is established "entirely along American standards," uses Chinese labor and largely Chinese materials, and employs foreign engineers as supervisors, the promotional material advertises Polar refrigerators as costing only one-third as much as the "very best imported refrigerators."

Price advantage of Polar units over foreign makes is apparently dependent on:

1. Use of comparatively cheap Chinese labor.
2. Avoidance of import tariff charges—the sales price of American-made refrigerators, for example, being increased approximately 25% by the import duties.
3. Savings of railway and transoceanic freight charges which add to the prices of foreign brands.

Offering the Polar line in 4 to 7-cu. ft. models, the Rin-Tai company advertises a two-year free service guarantee (servicing done by "experienced mechanics only, with foreign supervision").

Features of Polar units, as indicated by the pamphlets, are: noiseless operation, interior lights, easy-action door handles, and double chromium-plate on metal parts (including copper shelves). Some models have wire shelves attached to the inside of the door.

Finishes in various colors are offered, white not being favored by most Chinese prospects.

Chief sales appeals used in these pamphlets are pioneering ones. Stressed are such arguments as these: refrigeration is insurance against ill-health—preventing contamination of food and preserving it in "vitamin-fresh" condition; it makes eatables taste better; and it is a "necessity—not a luxury."

Cash, time, and rental terms are offered.

List price of the 6-cu. ft. "Family Model 1937" is about $150 in American money ($325 in Chinese).

When purchase is made by instalments, 10% must be paid down, the balance being taken care of according to special agreement between buyer and seller.

Rental rates on the 6-cu. ft. unit are (in United States money equivalents) about $6.45 a month for three-to-six-month periods, and $5.50 a month for periods of six months or more. Free servicing accompanies all rental units.

Most striking aspect of the pamphlets is that both use all three languages, complete English copy being repeated in Russian and Chinese. Tientsin is located near the coast of northern China, and the Russian is supplied, apparently, for the benefit of those prospects of Siberian extraction.

Unusual makeup is used in one of the promotion pieces. Its pages are staggered, the first page being one-third the width of the last. Front view of it while closed reveals the margins of all odd-numbered pages. And on these margins are summarized the contents of the neighboring text in headlines (also in three languages) that serve as indices.

Hotpoint Products Claimed To Be World Travelers

CHICAGO—Hotpoint electric ranges and water heaters are seasoned world travelers, according to a survey by W. P. McGowen, of the foreign department of Edison General Electric Appliance Co.

The survey showed that these Hotpoint products are now being used in Mexico, South America, India, Europe, Bermuda, Puerto Rico, Hawaii, Java, China, and Africa.

Anaconda Copper
REFRIGERATION TUBES
They Flare without cracking
ANACONDA THE AMERICAN BRASS CO.
FRENCH SMALL TUBE Branch
General Offices: Waterbury, Conn.

STRICT ANALYSIS AND UNIFORM QUALITY
differentiate and distinguish
this TRIED and PROVEN
INSULATION

● Throughout the long and brilliant history of Owens-Illinois research and engineering, no one development stands forth more conspicuously than Fiberglas. Fiberglas squarely meets the nation-wide demand of industry and commerce for a chemically *stable* insulation that is manufactured to strict analysis and in uniform quality.

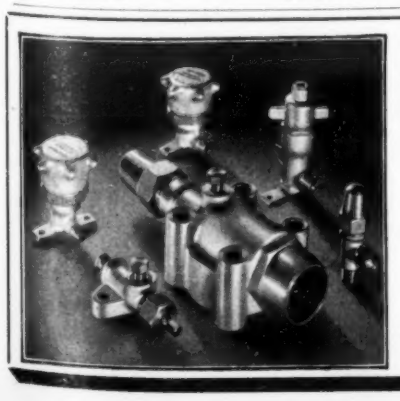
Fiberglas is a scientific improvement on the processes of nature. *It is a test-tube product,* perfected by highly trained scientists and technicians in the fully equipped research and experimental laboratories of the Owens-Illinois Glass Company. Like all other Owens-Illinois products it is manufactured by precision processes and held to the most exacting standards. For that reason every square foot of Fiberglas Insulation is like every other square foot of the same material. Fiberglas possesses all of these sixteen distinguishing major characteristics:

1. High Insulating Value.
2. Extremely Low Moisture Absorption.
3. Freedom from Rotting.
4. Rodent-, Vermin- and Termite-Proof.
5. Freedom from Odors.
6. Non-absorption of Odors.
7. Fungus- and Bacteria-Proof.
8. Light Weight.
9. Non-inflammability.
10. Permanence.
11. Resistance to Acid.
12. Sound Absorption.
13. Resiliency and Flexibility.
14. Availability in Different Fiber Diameters and Lengths.
15. Availability in Different Densities.
16. Adaptability to Combination with Other Materials.

For detailed information about the use of Fiberglas Insulation in refrigerators and coolers, write Industrial and Structural Products Division, Owens-Illinois Glass Company, Toledo, Ohio.

The Owens-Illinois Glass Company also manufactures Insulux Glass Block, Dust-Stop Replacement-Type Air Filters and Fiberglas Insulation for all types of industrial use.

OWENS-ILLINOIS Fiberglas
THE MODERN INSULATION



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Refrigeration Valves are *Certified to Excel*
●
Ask for catalog covering complete line of Valves, Fittings, Condensing Water Regulators, and Parts for Compressors.
PERFECTION REFRIGERATION PARTS CO.
HARVEY, ILLINOIS

ENGINEERING

Instability of Body Odors Reduces Ventilation Needs, Yaglou Reports

A report on a study of the stability or persistence of different odors, and their relationship to air change under various conditions as determined by actual tests, was recently released by Prof. C. P. Yaglou, assistant professor of industrial hygiene, Harvard School of Public Health.

One interesting point brought out in the report was that trouble is likely to result from determining air requirements for ventilation by allowing some stated quantity of outside air per person without further consideration, because air requirements per occupant increase with the number of occupants within a given room, while certain odors rapidly wane in strength even with no ventilation whatever.

For these reasons, the fresh air supplied per person must be increased for more heavily crowded areas, and for areas in which the activities of the occupants result in odors of a more stable nature.

For example, the fresh air requirement per occupant of 7 c.f.m. when three persons were in a room of 1,410 cu. ft. was given, as compared with the demand per occupant of 25 c.f.m. when 14 persons were in the same room. Ordinary "B.O." (body odor) was said to diminish very rapidly even without air change, although tobacco odor was declared to increase in strength for a period of several hours as it grew more stale.

Furthermore, the "human smell" was said to be less offensive at reduced temperature and humidity, and to be readily masked by other odors, such as those of perfume and talcum powders.

EFFICIENCY REDUCED

These points merit consideration because sufficient air must be introduced into the conditioned space to prevent unpleasant odor concentration, yet excessive introduction of outside air beyond that necessary for accomplishing this purpose represents needless expense, both because of the superfluous load upon the air treating plant, and because the efficiency of ventilation is reduced as the air quantity is increased.

"Efficiency" of ventilation is not to be confused with "effectiveness," for, as the speaker explained:

"Efficiency of ventilation for the purpose of this study was taken as the ratio of effective air supply to the total air supply. Effective air supply is that passing over the occupied zone, and capable of removing the products of respiration and transpiration.

"It was determined from measurements of carbon dioxide in representative areas, in the breathing zone between the seats of occupants. Most of the experiments were carried out with seven adult persons in the room, the observer himself serving as subject.

"With airflows under 5 c.f.m. per person, ventilation efficiency was practically 100%, decreasing progressively as the air supply increased. With 30 c.f.m. per person, the efficiency was about 75%.

"From the standpoint of efficiency, it would seem that rate of air supply is more significant than number of occupants in a room, but the data with three and 14 persons are too few to draw a conclusion.

"The important thing to emphasize is the advantage of large rooms over small ones, as they act like reservoirs, allowing body odor to disappear, with a minimum air supply and maximum ventilation efficiency. Reducing the size of a room entails an increase of ventilation rate and a simultaneous decrease of ventilation efficiency."

TOBACCO EXCEPTION

However, in the case of odors resulting from tobacco smoke, Prof. Yaglou declared the small room with rapid air change to be more effective because of the tendency of tobacco smoke to grow stronger with age when permitted to linger in the large room with low air change rate.

The fact that different odors of the same intensity disappear at different rates proves that certain odors must be removed by absorption, condensation or other manner of dissipation as well as by removal by air change.

"Heretofore body odor in the air of occupied rooms was regarded as a more or less stable entity, and the problem of odor control was thought to be mainly one of plain dilution with clean outside air," declared Prof. Yaglou in this connection.

"Evidence obtained during the past two years does not support this view, but indicates that body odors are very unstable, tending to disappear rapidly with time, much faster than most odors with which the ventilating engineer is confronted in public buildings.

RAPID DISAPPEARANCE

"In experiments carried out under representative conditions in winter and summer with respect to temperature, humidity, clothing, and other factors, the strength of body odor fell abruptly from an initial value between 3.5 and 4.0 to the allowable intensity of 2 in less than 4 minutes after the subjects left the room. Twenty minutes later the odor index was about 1.

"From then on, the rate of disappearance became very slow, and finally equilibrium was reached at an intensity between 0.5 and 1.0. By this time the odor lost much of its characteristic human smell and after 48 hours it was difficult to identify it as such in the presence of other weak odors coming from other sources in the room. A certain minimum amount of ventilation was always necessary to clear out this residual odor.

"The explanation for the abrupt disappearance rate of body odor is not quite clear. Oxidation would seem to be a most plausible cause. It is possible that some constituents of the body-odor complex are extremely unstable, leaving behind other less odorous but relatively stable constituents which can be smelled for days. The loss of moisture from the organic material to the atmosphere may also have something to do with the loss of odor.

"The influence of per capita air space on ventilation requirements from the standpoint of body odor would, therefore, seem to be explainable, almost entirely, by the rapid disappearance of odor.

"Unlike body odor, the odor of tobacco smoke not only remained longer in the room, but its intensity increased in a peculiar manner during the first three hours following the smoking period. From then on, the intensity began to decrease gradually, finally reaching a stable level of 0.5 after 17 to 48 hours, according to the number of cigarets smoked.

"The rise in odor intensity after smoking seems to agree with common observation that the odor of stale tobacco smoke is more offensive than the odor of fresh smoke. Alterations in physical characteristics of the smoke in passing through the respiratory tract are probably not responsible for this. Presumably, it would be advantageous to make smoking rooms as small as is practicable and ventilate them fast."

CONCLUSIONS

Prof. Yaglou summed up his talk as follows:

"Body odors are not stable but tend to disappear rapidly in a closed room within a few minutes after the occupants leave. A weak residual odor persists for days unless the room is ventilated.

"The unusually rapid disappearance rate is a characteristic of body odor itself, differing greatly from disappearance characteristics of other odors, such as butyric or valeric acid, tobacco smoke, and ozone, all capable of completely masking body odor.

"Unlike body odor, the odor of tobacco smoke not only remains longer in the air but its intensity increases during the first three hours following smoking.

"Air space per occupant in a room not only affects the disappearance rate of body odors and hence ventilation requirements, but also the efficiency of ventilation systems. Large rooms have an advantage over small ones, as they act like reservoirs, allowing body odors to disappear with a minimum outdoor air supply and maximum ventilation efficiency.

"A small room would require a greater air supply per occupant for the control of body odor. An increased air supply entails a loss of ventilation efficiency, as the air passes quickly to the exhaust without removing a full share of odors, heat, and moisture.

"On the other hand, the problem of tobacco-smoke control would seem to consist in making rooms as small as is practicable and ventilating them fast."

Eliminating Offensive Odors

New information on the air-conditioning engineer's problems of odor control is given in the two reports of research studies published on this and the following page.

In the first report, Prof. C. P. Yaglou gives interesting findings on the rate of disappearance of body odors, as compared with other types of room odors, and on the amount of ventilation required to overcome them.

In the other report, F. H. Munkelt describes the use of activated carbon odor removers in an air-conditioning system, and tells how they should reduce operating costs.

Odor Control by Use of Activated Carbon Described by Munkelt

Use of odor adsorbers of the activated carbon type in an air-conditioning system will provide nearly complete odor control and should also reduce operating costs, stated F. H. Munkelt of the Consolidated Air Conditioning Corp., in a recent paper.

At the annual meeting of the A.S.R.E. in 1935, Mr. Munkelt recalled, a discussion of the characteristics of odor and of the sense of smell was presented by Philip Drinker of the Harvard School of Public Health.

Shortly afterward C. P. Yaglou of the same institution reported a series of tests to the A.S.H.V.E., determining the air requirements for ventilation of occupied rooms. He pointed out that even healthy, clean persons, freshly after a bath, gave off an appreciable amount of odor which required 15 to 18 c.f.m. of outdoor air per person in order to dilute it to a concentration that was not objectionable to persons entering the room from relatively clean air.

With other classes of people, the outdoor air requirement increased to as much as 29 c.f.m. per person, under conditions of "simple occupancy," that is, with no sources of odor other than from the occupants themselves.

30 C.f.m. STANDARD

Untreated recirculated air in any amount was found to have no effect on odor intensity or quality of air.

"It has long been customary, in ventilating practice, to provide 30 c.f.m. per occupant, when it is desired to dilute odors sufficiently to reduce their concentration to the "threshold point," that is the concentration at which odors are barely detectable by trained observers as they enter the enclosure from clean outdoor air," said the speaker.

"This rate has proved sufficient for body odor from average types of persons together with such other odors as light perfumes, and light smoking.

"It is subject to modifications in special situations and it is increased generally when other odors, such as those from the handling, cooking and serving of foods, from alcoholic beverages, or from heavy smoking are present. However, measurable vitiation of the air begins only when the supply falls below 3½ to 5 c.f.m., depending upon the age and activity of the occupants.

"A supply up to 7 or even 10 c.f.m. may be required to preserve the proper oxygen and carbon dioxide balance for men at heavy labor. Likewise, the supply should be increased when other sources of vitiation are present, such as open flames and burning tobacco.

ODOR REMOVERS

"The field of the odor remover lies in the margin between a proper and ample quantity of air to preclude vitiation and the quantity required to maintain odors at the threshold point. The field is wide and presents an opportunity to designing engineers to economize not only in the cost of the installation but in, what is more important, the cost of operation.

"Table 1 sets forth the figures in terms of cubic feet per minute per occupant. The first column is the required supply when no odor adsorbers are used; the other two columns divide this figure between outside air and additional recirculated air.

"This table assumes a volume of 200 to 250 cubic feet per person, and average classes of people, and is derived from Yaglou's paper. It must be remembered that the figures quoted in the table are based on tests made under ideal conditions, particularly on clean ventilating apparatus, as was quite proper in order to eliminate as many variables as possible in making the tests.

MODIFICATIONS

"The experienced ventilating engineer will modify them for special conditions and also for odors emanating from the inside surfaces of ducts, from cooling coils, and from the pollution of spray water.

"The savings possible for each 1,000 c.f.m. deducted from outside air and added to recirculated air is

(*Concluded on Page 17, Column 1*)

COLD FACTS
ABOUT REFRIGERATOR DOOR GASKETS

★ One out of four refrigerators now in use is in need of door gasket replacements. That means hundreds of prospects right in your own community. It's an easy service to sell—not costly—vitally important to safe, economical refrigeration—and every sale represents a worth-while profit.

As to a dependable source for gasket supplies—let Miller carry that responsibility for you. You can service 80% of all refrigerators made from the Miller simplified line of 20 gasket types. Complete stocks insure immediate delivery. Order them as you need them.

Here is a wide-open market for wide-awake service men. Why not go after this profitable business in 1937? Get illustrated price list from your local jobber, or write direct.

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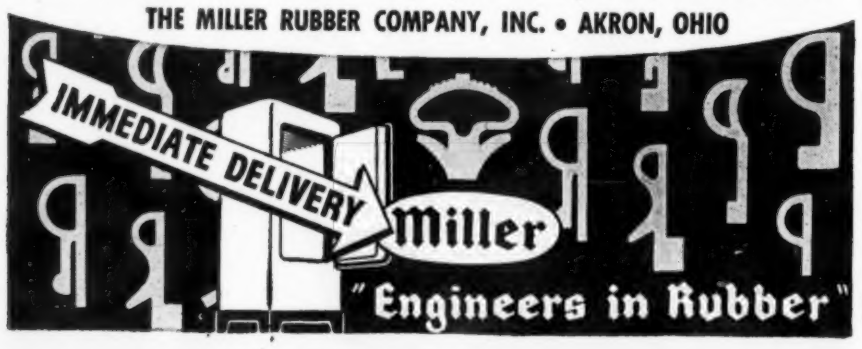

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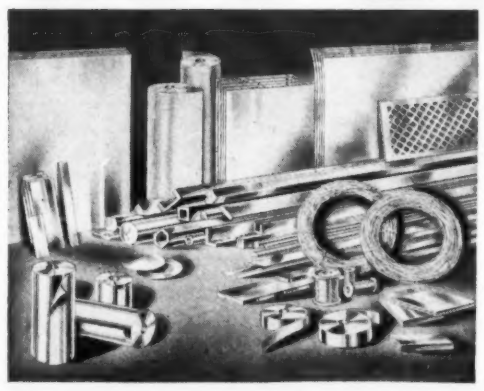


A 100% complete copper service—rolls and sheets in all finishes for every type of air conditioning apparatus—Sales offices and warehouses in every important industrial center to serve you promptly.

C. G. HUSSEY & CO.
A Division of Copper Range Company
MAIN OFFICE AND ROLLING MILLS, PITTSBURGH, PA.

JOE'S ELECTED

When Hard-Boiled Joe says "Phooey for that sulphur dioxide, I can take it," he's just easy pickin' for old SO_2. But there's another angle. You appreciate Joe—good man—don't want to see him handicapped—even a little; then provide him with lung protection and if necessary put the "heat on" to make him wear it.

CESCO HEALTHGUARD FUME KIT

is one hundred per cent effective; but Joe won't care about that unless the thing is "easy" on the face. That's where you'll get him. For the mask goes off and on readily, does not bind, and needs only one adjustment to make it fit Joe's particular sort of beauty, perfectly.

JOE WILL 'GO'

The Cesco Healthguard Fume Kit has Joe behind the eight ball no matter what he says. It is light, easily carried—and a friend of his. He'll go along. Kit comes equipped with cartridges for Methyl Chloride, Ammonia and Sulphur Dioxide. Write us.

CHICAGO EYE SHIELD CO.
2352 Warren Blvd. CHICAGO, ILLINOIS

Odor Remover Permits More Recirculation, Lower Refrigeration Costs, Munkelt Says

(*Concluded from Page 16, Column 5*)

given in Table 2 in terms of B.t.u. tons of refrigeration.

"For example, if a room were designed for an occupancy of 1,000, and if conditions of occupancy were such that the installation of odor removers permitted a reduction of 13 c.f.m. per person from outdoor air and a like addition to the recirculated air, a total of 13,000 c.f.m., and if the assumed outdoor temperature is 85° F., 50% relative humidity, the savings in tons of refrigeration as derived from Table 2 is 2.85 times 13, or a total of 37 tons."

SOLID ADSORBENTS

Of the various methods proposed for the control of odors, the method of removal by solid adsorbents is the only one which actually removes the odor, declared Mr. Munkelt.

"An adsorbing material which embodies all the properties desired for air-conditioning work is activated carbon manufactured from coconut shells," he explained. "As we are concerned here with the removal of odors in air conditioning, I will confine discussion to that material.

"By adsorption is meant that property of an adsorbing medium of being able to adsorb condensible vapors and gases which come in contact with its surface, and to hold them firmly in a condensed condition until forced by special means to release them.

ACTIVATED CARBON

"Coconut shell activated carbon is very active in adsorption of hydrocarbons and organic gases, in which class fall most of the odors with which this paper is concerned; on the other hand, it has very little, practically a negligible, activity toward water vapor.

"In fact, absorbed water vapor will be replaced by hydrocarbons, or other gases, for which it has a much higher activity.

"It has a high adsorptive capacity, which is defined as the percentage by weight of the adsorbed gas to the weight of the carbon, which will be reached before the carbon is saturated and unable to adsorb additional gas. This property is extremely important because it makes for long life between revivifications and attendant low operating cost of the odor remover.

"But it is all the more important when considered in connection with the high density of the carbon. The combination of high density and high adsorptive capacity of coconut shell activated carbon makes possible apparatus with much smaller space requirements that would be practical otherwise.

FAVORABLE PROPERTIES

"Other characteristics which commend coconut shell carbon for air-conditioning work are hardness and structural strength. It is not easily abraded, and does not settle or 'dust off.' These properties help to explain why the carbon can be revivified without deterioration or loss, a quality which is most important because it contributes to low replacement costs, and consequently to low operating costs for air-conditioning applications, as mentioned above.

"The more important odors encountered in air conditioning work are butyric and valeric acids, which are the common body odors; alcohol and the flavors generally associated with liquors; pyridine, which is the odor from burning tobacco; essential oils as used in perfumes; acrolein, which is generated from frying fat; and finally, cooking odors.

"The concentration at which odors become noticeable varies considerably. For instance, butyric acid (body odor) can be detected in a concentration of only .0000624 parts per million; pyridine (burning tobacco) in a concentration of .0024 parts per million; and some of the essential oils as much as .066 parts per million.

DESIGNING UNIT

"The breakdown point, or point at which odor begins to pass through a relatively thin bed of carbon through which an odor-bearing air stream is flowing, is less than the adsorption capacity of the carbon and must be determined for each velocity, thickness of bed, and grading of carbon. The bed may then be designed for a long service life.

"When odor remover equipment is applied to an air-conditioning system for the purpose of improving the economy of the system, the most suitable location is usually on the recirculation (return air) duct.

"Rarely will conditions or convenience prefer the supply duct. But, if located on the recirculation duct, there is the advantage over the supply duct of a smaller quantity of air to be treated and, furthermore, the odors are removed before they have had opportunity to contaminate filters, washers or coils.

"Partial treatment is feasible and sound, provided conditions do not demand the complete removal of the odorous gases. For all odors, there is a degree of concentration below which the odor does not affect the olfactory nerves sufficiently to be noticed by the subject.

"Complete removal from a portion of the air will, therefore, be enough in most cases. As has been indicated above, treatment of an amount equal to the amount deducted from the new air supply and added to recirculation will, in most cases, give the desired results.

BY-PASS ARRANGEMENT

"The best arrangement is a by-pass with a separate fan of sufficient capacity to handle the amount to be treated at the resistance of the odor adsorbers. The load on the main fan will then not be increased.

"The by-pass arrangement works out particularly well when applied to existing systems, where it may be desired to add considerably to the airflow in the recirculation ducts. In this case, a by-pass relieves in part the additional resistance which would fall on the main fans.

"The apparatus which has been developed is simple and flexible. Small canisters, each capable of handling 20 to 40 c.f.m., are removably attached to manifold plate, which in turn is installed in the duct.

"Cross sectional area required is approximately the same as that required for the dust filter, and the resistance is no higher, a good average being 0.18-inch water gauge. It is good practice to place a filter in advance of the adsorbers, to prevent dust accumulating on the adsorbers and causing a change in resistance or a reduction in life before cleaning is required.

"In most air-conditioning applications, the service life can be expected to reach three to five years. As indicated above, the carbon may then be revivified without deterioration."

Table 1—Proper Air Quantities

Room condition	Outdoor air when odor removers are not used	—With odor removers— Outside air	Add to recirculated air
Body odors only	15	6	9
Body odors and light smoking or other source of objectionable odors	22	9	13
Body odors and heavy smoking or other source of objectionable odors	28	12	16

Table 2—Additional Cooling Necessary per 1,000 Cu. Ft. Outside Air

Over that of the same quantity of recirculated air at various relative indoor and outdoor temperatures, expressed in B.t.u. and tons of refrigeration.

Assumed Outside Air Temperature, °F. Dry bulb	Wet bulb	Relative humidity, %	Assumed Room Air Temperature °F. Dry bulb	Wet bulb	Relative humidity, %	Excess heat to be extracted, B.t.u.	Additional refrigeration, tons
95	78	45	80	66	50	760	3.80
90	75	50	78	65	50	600	3.00
85	73	55	76	63	50	570	2.85
80	70	62	74	61	50	484	2.42
75	68	70	72	60	50	450	2.25

Density of air based on room temperature.

York Equipment Cools Houston Hotel

HOUSTON—A $90,000 York air-conditioning system providing for individual room control has been installed in the Ben Milam hotel, said to be Houston's first completely air-conditioned hotel.

York equipment also has been installed in the following Southwest hotels: St. Anthony, San Antonio, Tex.; Plaza, Laredo, Tex.; Hilton, Longview, Tex.; Washington-Youree annex, Shreveport, La.; and New Monteleone, New Orleans.

Air-Control, Inc. Conditions Peoria, Ill. Fashion Center

PEORIA, Ill.—Air-Control, Inc. has installed air-conditioning equipment in Klein's Fashion Center here.

Crawley Electric Co. did the electrical work on the installation and Crowley Bros. handled the plumbing connections.

Carrier Equips Men's Shop In Winston-Salem, N. C.

WINSTON-SALEM, N. C.—A Carrier air-conditioning system has been installed in the Norman Stockton, Inc. men's wear store here. Sam E. Beck, Inc. is the Carrier distributor in this territory.

Canton Hardware Conditions Ready-to-Wear Store

CANTON, Ohio—Canton Hardware Co. installed a York air-conditioning unit in Stone Bros., local ready-to-wear store.

Air-Conditioned Homes To Stabilize Values, L. G. Estep Believes

NEW YORK CITY—That the construction of air-conditioned homes will guarantee stable land values in the future was the theory set forth by Leslie G. Estep, assistant sales manager in charge of residential air conditioning for Kelvinator division of Nash-Kelvinator Corp., before architects, builders, utility men, and financiers at a recent luncheon conference on residential air conditioning held at Hotel Astor.

"Americans want homes of scientific design, of moderate cost, with thermostatic temperature control, adequate insulation, and a modern kitchen," Mr. Estep declared. "Homes without these advantages and without air conditioning soon will become obsolete," he said, "and their high resulting depreciation will pull down the value of the property itself."

Bollenback Tells Charlotte Engineers about Conditioning

CHARLOTTE, N. C.—A. W. Bollenback, manager of the Charlotte branch of the Air & Refrigeration Corp., discussed air conditioning before members of the Charlotte Engineers club recently. The program was arranged by M. K. Cannon.

40 Graduate Engineers Take York Course

YORK, Pa.—Forty college graduates are in the training course of York Ice Machinery Corp. preparing for active sales and engineering service in the air-conditioning and refrigeration fields, reports S. E. Lauer, vice president and general sales manager.

The York course, now in its 35th year, consists of three months field experience in branch offices supplemented by academic work in air conditioning and refrigeration.

The field training is followed by three months at the factory, where the students observe production and engineering methods and take classroom work in sales and engineering.

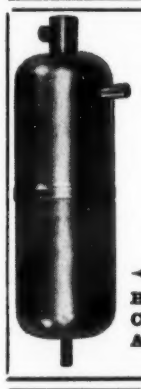
Seventy per cent of those who have completed the training during the last 30 years are still with the company.

Rockford Firm Equips Local Hotel Dining Rooms

ROCKFORD, Ill.—Smith Oil & Refining Co. has installed Carrier air conditioning in the Rainbo Room and dining room of Hotel Faust here. Barber-Colman controls and grilles were used, and Alga Reece Sheet Metal Co. installed ductwork.

THE BUYER'S GUIDE

The Only MAJESTIC
Service Anywhere in the World
Original and Genuine
Direct Factory Service
Refrigerator and Radio Parts and Service
Dealers Wanted Everywhere
BEWARE OF IMITATION REPLACEMENT PARTS AND UNITS.
For Every Model Prior to 1936
OUR REBUILT UNITS ARE GUARANTEED 18 MONTHS
G & G GENUINE MAJESTIC REFRIGERATOR AND RADIO PARTS SERVICE
FACTORY & GENERAL OFFICES: 5801 DICKENS AVE. . . . CHICAGO, ILL.



RECEIVER TANKS—COMPRESSOR BASES—MOTOR MOUNTING BASES—AND OTHER STAMPINGS AND ASSEMBLIES FOR REFRIGERATION AND AIR CONDITIONING.

Our Receiver Tanks are made with drawn shells. Assembly by Hydrogen Brazing produces tanks chemically clean and free from dirt. Can furnish tanks painted if desired.

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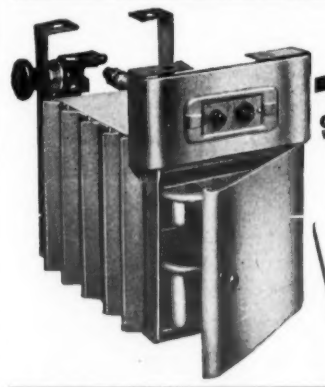


STANDARD FAST-ICE EVAPORATORS

All copper and brass construction. Continuous ⅝" copper tubing metallically bonded above and beneath each tray. Side fin walls and hangers riveted to sleeves. Stainless steel doors and control plates. Silver satin finish. A consistently superior product.
Write for price and specifications
Bulletin No. 101

STANDARD REFRIGERATION CO.
9 So. Clinton St. Chicago, Ill.

All Rifling Isn't In Gun Barrels - -

In 1937 Peerless will put 750 MILES of "Rifling" in refrigerant tubes—enough to reach from Chicago to New York. A different kind of "Rifling"—but just as necessary to good refrigeration as gun barrel rifling is to good marksmanship.

Jerry Sumrall, production superintendent of Peerless' Pacific Coast Factory, tells you:

"The spiral metal strip in my right hand is 'Rifling.' It swirls the liquid refrigerant passing through the tubing, bringing it into contact with the entire tubing wall. It eliminates the intermittent action of the thermal valve and breaks up liquid slugs. It acts as interior finning, increasing prime surface area in contact with refrigerant."

IT INCREASES COIL EFFICIENCY OVER 30%.

PEERLESS of AMERICA, Inc.
ESTABLISHED IN 1912 AS THE PEERLESS ICE MACHINE CO.
New York Factory 43-20 34th Street Long Island City
Main Factory—General Offices 515 West 35th Street Chicago
Pacific Coast Factory 3000 S. Main Street Los Angeles
PEERLESS JOBBERS IN ALL PRINCIPAL CITIES
BUY PEERLESS FOR PERFORMANCE

Know your stuff!

Recorders of all types

Gauges for all pressure medium

PRESSURES and temperatures are basic factors on every refrigeration or air conditioning job and when it comes to measuring them it pays to "know your stuff."

Equip yourself with Marsh pressure and temperature testing equipment and be sure that Marsh gauges are also specified for all your installations. There are many reasons why servicemen choose Marsh gauges and thermometers, but the feature that has received the heartiest endorsement is the Marsh "Recalibrator." When a Marsh gauge or thermometer is knocked out of adjustment, a simple screw driver adjustment not only sets it correctly at zero, but actually re-calibrates it throughout its entire range.

Write for the complete catalog of Marsh instruments for refrigeration and air conditioning.

JAS. P. MARSH CORPORATION
2067 Southport Ave., Chicago, Ill.

Dial Thermometers

Accurate Mercury Switches

MARSH Refrigeration Instruments

Rochester Hotel Credits 200% Increase in Food & Beverage Sales to Air Conditioning

ROCHESTER, N. Y.—"The food and beverage business has increased approximately 200%," declared the manager of the Hotel Rochester here, when asked how the hotel's business had been affected by the installation of air conditioning.

The air-conditioning installation, recently completed, makes use of two separate Carrier systems installed in the main public rooms of this hotel, thus making possible the maintenance of different conditions in various conditioned spaces to suit their usage and occupancy. The lobby, mezzanine, main dining room, tap room, and barber shop are conditioned by a system which makes use of two Carrier "Weathermakers."

All ducts are concealed by suitable "furring," while the air supply openings in the rooms are concealed and arranged to harmonize with the perforated acoustical ceilings which are employed generally throughout the public rooms. In rooms where considerable smoking is the rule, air is removed by a mechanical exhaust system from the upper portion of the room where smoke naturally collects.

Similar to the installation in the local hostelry, is the Carrier installation in Syracuse's Hotel Syracuse. In that establishment, the cocktail lounge, the coffee shop, and the Rainbow Room are air conditioned by four Carrier Weathermakers.

Another portable Carrier system has been installed in this state in Gowanda's Red Robin Inn.

"The air-conditioning system, by its efficient removal of smoke and cooking odors, has made floor shows and food more enjoyable," the management reported.

"One of our main troubles, before we put in air conditioning, was disposal of smoke. Patrons state they can enjoy the floor show much more now that they do not have to watch with stinging eyes."

Fox Furnace Co. Opens New York Display

NEW YORK CITY—Fox Furnace Co., Elyria, Ohio, is maintaining a display of its Sunbeam air-conditioning units in the new exhibit hall in the American Radiator and Standard Sanitary Corp. building at 40 W. 40th St. here.

The Fox section includes oil, coal, and gas-fired air conditioners, large colored photographs of units not on exhibition, and various accessories such as humidifiers, filters, and controls.

Part of the Fox display area has been converted into a typical home basement equipped with a zone control, year-around Sunbeam air conditioner arranged to show the duct dampers in the unit and sections of the ductwork leading from the conditioner into the ceiling and up to a cutaway floor.

Metals Group Secretary Predicts Doubled Use In Air Conditioning

NEW YORK CITY—Use of copper, brass, and bronze by the air-conditioning industry this year will aggregate 25,000,000 pounds, or double the record consumption of 13,000,000 pounds in 1936, Bertram B. Caddle, secretary of the Copper & Brass Research Association, predicts. The industry paid $50,000,000 for these products last year.

Mechanical refrigeration, the oil burner industry, and other manufacturing fields are expected to set new records in consumption of these metals, Caddle said.

Sears, Roebuck Conditions Evansville Store

EVANSVILLE, Ind.—Air conditioning to provide summer cooling throughout the entire Sears, Roebuck & Co. store here, is being installed as part of a $300,000 modernization and building project. Construction of an addition, and conversion of the entire basement into a sales floor, will provide a total floor space of 79,650 sq. ft.

First retail unit operated by the company outside of Chicago, the store was opened in 1925 as an experiment. Cyril J. Deutsch is store manager.

First Dayton Market Installs Air Conditioning

DAYTON — Refrigeration Equipment Co. installed Delco-Frigidaire air-conditioning in The Arcade food market here, the first market to be air conditioned in this locality.

June Air-Conditioning Equipment Sales Reach $7,440,019 Total

Item	Value of Orders Booked June 1937	June 1936	Total, 6 Mos. Jan.-June 1937
Total	**$7,440,019**	**$4,555,757**	**$38,860,646**
Air-Conditioning Group—Total	**4,226,591**	**2,510,415**	**22,814,372**
Unit Systems			
Self-contained (shipped substantially complete)	1,271,474	533,490	4,651,725
Not self-contained (shipped in sections), including refrigerating or cooling medium	1,046,960	786,424	5,719,168
Central-station Systems, excluding installation if installed—			
Human comfort (including refrigerating or cooling medium sold separately or otherwise for air conditioning)*	1,113,794	573,878	7,864,471
Industrial (including refrigerating or cooling medium sold separately or otherwise for air conditioning)*	99,974	23,824	580,211
Refrigerating or cooling medium sold to contractors or other distributing outlets (not manufacturing air-conditioning equipment) for air-conditioning systems, when such knowledge as to the application is available	374,602	386,706	2,202,407
Air washers, including pumps and motors and control where furnished	115,335	90,760	603,955
Air filters (not including sales of filters used with machinery other than fans)	41,290	18,499	205,882
Humidifiers	163,162	96,834	986,553
Fan Group—Total	**$2,246,876**	**$1,419,153**	**$10,778,769**
Fans, including bearings, pulleys or couplings (if furnished)—			
For public and semi-public buildings	197,762	140,228	1,161,955
For general industrial uses	523,271	382,725	3,199,061
For mechanical draft	395,343	147,113	1,837,598
For jobber stocks and unknown uses	209,300	103,819	954,778
Small housed and propeller fans—			
Direct connected small housed blowers with motors and control (merchandise motors)	162,736	162,685	895,759
Propeller fans, direct connected and belted (for ventilation only)	645,301	395,055	2,037,517
Driving mechanism for general fan use (not reported above)—			
Electric motors and controllers (manufactured or jobbed)	112,380	80,639	579,418
Steam engines (manufactured or jobbed) / Steam turbines (manufactured or jobbed)	783	6,891	94,680
Unit Heater Group—Total	**$ 966,552**	**$ 626,189**	**$ 5,267,505**
Industrial Type Unit Heaters, including heating element and motors where furnished—			
Equipped with blower-type (centrifugal) fans	95,583	63,001	798,156
Equipped with propeller-type fans	515,470	235,756	2,045,122
School Room Type Unit Heaters, including heating element and motors and control where furnished	89,388	168,572	684,331
Indirect Heating Surface (not including unit heater surface)—			
Steel pipe coil type (manufactured or jobbed)	1,009	558	21,480
Cast iron type (manufactured or jobbed)	13,742	7,107	67,264
Copper or aluminum type (manufactured or jobbed)	251,360	151,195	1,651,152

*Includes incidental equipment, such as temperature, motor, humidity, and electrical controls, dampers, outlets, etc., as are sold with each.

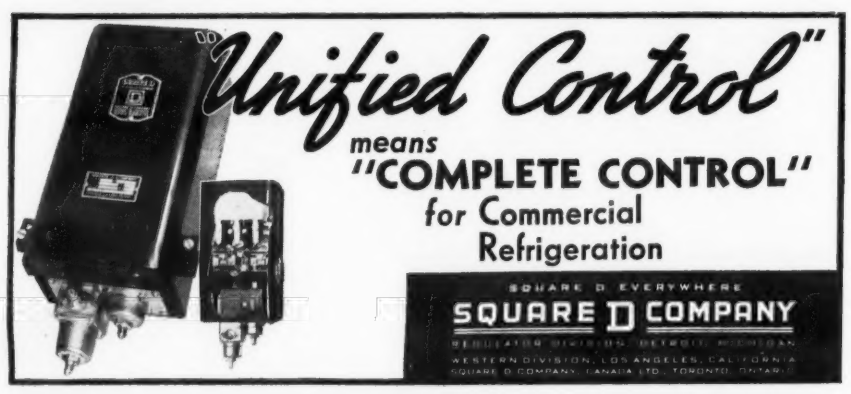
Air-Conditioning Installations in Birmingham, Ala. for First 6 Months of 1937

Name	Make	Hp.
Restaurants		
Birmingham Country Club	Airtemp	3.00
Birmingham Athletic Club (3 floors)	Airtemp	6.66
Casino	Airtemp	13.00
San Sa Gai	Airtemp	6.33
Tutwiler Continental Room	Carrier	40.00
Bankhead Hotel	Carrier	15.00
Thomas Jefferson Hotel	Frick	40.00
Paramount	Westinghouse	12.50
Offices		
Bradley Baldwin All & White	Airtemp	1.00
Roy Gridley	Airtemp	2.00
R. R. Myer	Carrier	1.50
U. S. Federal Court	Carrier	28.50
Southern Dairies	Frick	1.00
Frigidaire Corp.	Frigidaire	.75
Birmingham Electric Co.	Airtemp	10.00
Stores		
Fan Tan Shop	Airtemp	3.33
Adorable Dress Shop	Airtemp	3.25
Florsheim Shoe Co.	Carrier	3.25
Kress	Carrier	367.00
Grayson's	Trane-Curtis	15.00
Lerners	Westinghouse	16.50
Odum Bowers & White	Westinghouse	31.25
Odum Clothing Co.	Westinghouse	18.50
Pizitz	York	587.50
Burger Phillips (6th floor)	York	26.20
Virginia Dare Shop	York	8.50
Funeral Homes		
Rideout Funeral Co.	Airtemp	16.00
Brown Service (Johns)	Carrier	2.25
Luquire	Westinghouse	15.00
Beauty Shops		
Blachs	Airtemp	6.00
Five Points Barber Shop	Howe	3.33
Pandora Beauty Shop	Howe	11.00
Theaters		
Empire Theater	Carrier	58.00
Galax & Capitol Theaters	Carrier	63.00
Strand Theater	Westinghouse	61.50
Miscellaneous		
American Cast Iron Pipe Co. (Industrial Hospital)	Carrier	25.80
Alpha Portland Cement Co. (Laboratory)	Carrier	3.25
Five additional room coolers		3.80
Total Installations—42		**1,530.45**

Summary of Installations

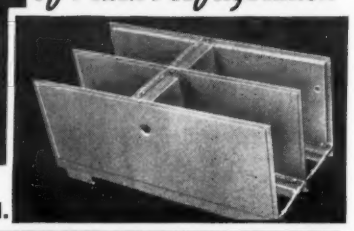
	Number Installations	Connected Horsepower
Prior to 1936	46	1,847
During 1936	52	921
First six months of 1937	42	1,531
Total	**140**	**4,299**

THE BUYER'S GUIDE



KOLD-HOLD
ICE CREAM CABINET CONVERSION UNITS
Modernize old equipment . . provide much greater storage space for packaged goods . . eliminate brine leaks and attendant odors . . reduce weight and simplify installation . . require a minimum of service . . provide ideal temperatures under all conditions . . cost less to operate . . quickly and easily installed in any standard cabinet at small cost.

As Outstandingly Superior as the **KOLD-HOLD** *System of Truck Refrigeration*



Write for Complete Facts
KOLD-HOLD MFG. CO. - LANSING, MICH.

LEADING MANUFACTURERS
Of refrigerator compressors use "SABECO" metal because this certified bronze is accurately made, exactly machined to specifications, seals perfectly, lasts longer, minimizes seal replacements. Send for details of "SABECO"—a better metal for refrigerant, oil, and water seals.

SEAL RINGS
BUSHINGS
BEARINGS
SEAL NOSES

Fredericksen Company
Saginaw, Michigan

HIGHEST **Filtrine** EFFICIENCY
FILTERS & COOLERS
SURGE TANKS
STEEL PIPE COILS
FILTRINE MFG. CO., Brooklyn, N. Y.

Dayton V-Belts are the logical choice for all types of appliances, because they provide silent, dependable transmission—because their powerful grip prevents slippage—because they run smoothly without weaving, twisting or vibrating. A nearby distributor carries a complete stock.

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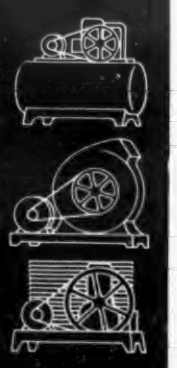
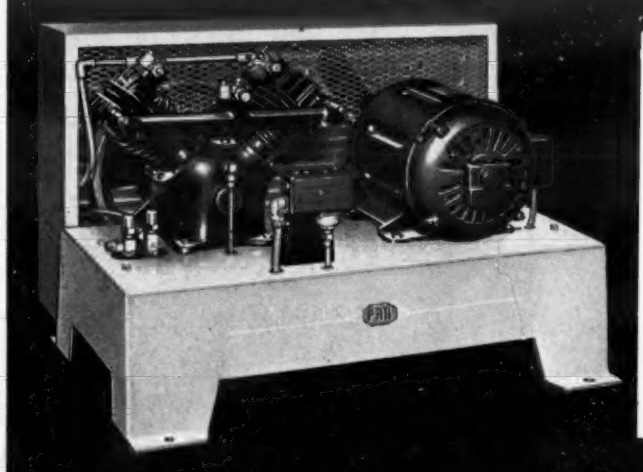
THE DAYTON RUBBER MANUFACTURING CO.
DAYTON, OHIO
WORLD'S LARGEST MANUFACTURER OF V-BELTS



★ **Dayton** ★
V-BELTS



PAR AIR COOLED HIGHSIDES

PAR refrigerating equipment has been designed by men with years of experience in the commercial refrigeration industry. All models have been thoroughly tested before approving for production.

Multiple cylinders of large capacity insure very low operating speeds. Sizes ¼ to 1 horse power are two cylinder pumps. Sizes 1½ and 2 horsepower are V type four cylinder pumps.

Par highsides are designed for use with Freon or Methyl Chloride refrigerants. All units are charged with Freon unless otherwise specified.

All air cooled highsides are equipped with oversize condensers, extra large receivers, sight oil gauge, shut-off valve between condenser and receiver, completely wired ready for installation.

Attractively finished, red pressed steel base, motor-compressor—control, black enamel, belt and fan guard silver. Base silver striped as shown in illustration.

MODERN EQUIPMENT CORPORATION
DEFIANCE - OHIO - U-S-A

Air Conditioning Made Easy — By F. O. Jordan

* * *

Computing Latent Heat Loads; Winter Heating Loads

SECTION NO. 20 (Cont.)
Field Engineering

Entire Sensible Load

Since the computed sensible load should be the maximum sensible load which actually occurs *all at the same time,* great care must be taken in ascertaining the time of day when the maximum sun load of each surface arrives within the conditioned space and when the peak occupancy and equipment loads occur, so that only those loads may be added which actually occur together.

It is upon the accuracy of the load estimate that the chances of making the sale largely depend, and also the success of the installation itself in case the sale is made.

Difficulty is sometimes encountered upon certain projects because most of the load is "internal." By this is meant that there is little or no transmission load or sun effect, practically all of the load being due to equipment, lighting, and occupancy.

A job of this type might be a restaurant or similar space, located in a basement with no outside exposure. In such a project, the sensible load is practically independent of the outside dry-bulb temperature so that the inside dry-bulb temperature which the equipment can maintain under peak load conditions is practically the same, regardless of the outside temperature.

In such cases it is advisable to give the equipment a surplus in capacity so that the inside dry-bulb temperature can be lowered somewhat below the usual inside design temperature during periods of moderate outside temperature for the purpose of giving to the customer that desirable sense of coolness upon entering the conditioned space.

This point should be discussed with the prospect. The proper surplus in capacity may be obtained by the use of the following rule:

Add 1% to the sensible capacity of the equipment for every 1% which the sun plus the transmission load falls short of being 20% of the entire sensible load.

For example, if sun plus transmission is 15% of the entire sensible load, add 5% to the sensible capacity of the equipment (20%-15% = 5%).

Latent Heat of Outside Air

The latent load resulting from the outside air is the heat which must be removed from the outside air that enters the conditioned space, in order to condense enough of its moisture from it to reduce its absolute humidity from the existing outside condition to the desired inside condition.

For the higher absolute humidity or moisture content of the outside air, and for the lower absolute humidity or moisture content of the air inside the conditioned space, the required moisture reduction must be greater.

Since absolute humidity or moisture content of air is measured by the dewpoint temperature, it is advisable and customary to designate moisture levels by stating their corresponding dewpoint temperatures.

Outside design dewpoint temperatures in the United States vary from 75° in certain Gulf states to 50° in a few very arid localities. However, an outside design dewpoint temperature of approximately 68° is acceptable in most parts of the United States.

As explained in a previous section on control of comfort, the inside dewpoint temperature or humidity required for comfort depends upon the inside dry-bulb temperature, a higher humidity being permissible with a lower dry-bulb temperature, and a lower humidity being required with a higher dry-bulb temperature, in order to obtain the same effective temperature or comfort level.

However, an inside design dewpoint temperature of 60° generally is acceptable. Therefore, a dewpoint temperature reduction of 8° is satisfactory for the outside air which enters the conditioned space in most parts of the country, with 13° being preferable in Gulf States, 4° in the dryer Plains regions, and 0° reduction in a few very dry desert localities.

The latent load of the outside air may be computed by multiplying the pounds of outside air introduced per hour by the difference between the latent heat per pound of air at the outside dewpoint temperature and at the inside dewpoint temperature, as taken from Table 15. It can also be computed by multiplying the cubic feet per hour of outside air by the difference between the latent heat per cubic feet at the outside and inside conditions as taken from Table 14.

A more simple method is to multiply the cubic feet of outside air introduced per hour by one of the following factors:

General Locality	Factor—Latent Load in B.t.u./cu. ft. Outside Air
Gulf States	.45—.50
Dry Plains Region	.15—.20
Very Arid Localities	.00—.00
Most of the United States	.25—.30

Generally the larger factor given above should be employed when estimating loads for projects upon which a 60° dewpoint temperature is being taken as the inside design condition, while the smaller factor may be used when the duration of occupancy is less than one half an hour, or when it is very desirable to reduce costs. If desired, the outside air latent load may be read directly from Table 20.

As an example, assume a project in New York City upon which 10,000 cubic feet of outside air is required per hour for ventilation and for which an outside dewpoint temperature of 60° is desired. From the above table of factors, .30 is given. Therefore, the outside air latent load is 3,000 B.t.u. per hour (.30 x 10,000).

Table 20—Ventilating Load—Latent Heat per Hour

(Loads are given in B.t.u. per hour)
Based on air at outside condition, assuming 58°—62° dewpoint inside

Dew Point Temp. Drop ° F.	Air Quantities in Cu. Ft. Per Hour: 10	20	30	40	50	60	70	80	90	100	200	300	400	500	600	700	800	900	1000
2°	.646	1.29	1.94	2.58	3.23	3.88	4.52	5.17	5.81	6.46	12.9	19.4	25.8	32.3	38.8	45.2	51.7	58.1	64.6
4°	1.334	2.67	4.00	5.34	6.67	8.00	9.34	10.67	12.01	13.34	26.7	40.0	53.4	66.7	80.0	93.4	106.7	120.1	133.4
6°	2.07	4.14	6.21	8.28	10.35	12.42	14.49	16.56	18.63	20.7	41.4	62.1	82.8	103.5	124.2	144.9	165.6	186.3	207.0
8°	2.86	5.72	8.58	11.44	14.30	17.16	20.02	22.88	25.74	28.6	57.2	85.8	114.4	143.0	171.6	200.2	228.8	257.4	286.0
10°	3.69	7.38	11.07	14.76	18.45	22.14	25.83	29.52	33.21	36.9	73.8	110.7	147.6	184.5	221.4	258.3	295.2	332.1	369.0
12°	4.58	9.16	13.74	18.32	22.90	27.48	32.06	36.64	41.22	45.8	91.6	137.4	183.2	229.0	274.8	320.6	366.4	412.2	458.0
14°	5.52	11.04	16.56	22.08	27.60	33.12	38.64	44.16	49.68	55.2	110.4	165.6	220.8	276.0	331.2	386.4	441.6	496.8	552.0
16°	6.53	13.06	19.59	26.12	32.65	39.18	45.71	52.24	58.77	65.3	130.6	195.9	261.2	326.5	391.8	457.1	522.4	587.7	653.0

Dew Point Temp. Drop ° F.	Air Quantities in Cu. Ft. Per Hour: 2000	3000	4000	5000	6000	7000	8000	9000	10000	20000	30000	40000	50000	60000	70000	80000	90000	100000
2°	129	194	258	323	388	452	517	581	646	1292	1938	2584	3230	3876	4522	5168	5814	6460
4°	267	400	534	667	800	934	1067	1201	1334	2668	4002	5336	6670	8004	9338	10672	12006	13340
6°	414	621	828	1035	1242	1449	1656	1863	2070	4140	6210	8280	10350	12420	14490	16560	18630	20700
8°	572	858	1144	1430	1716	2002	2288	2574	2860	5720	8580	11440	14300	17160	20020	22880	25740	28600
10°	738	1107	1476	1845	2214	2583	2952	3321	3690	7380	11070	14760	18450	22140	25830	29520	33210	36900
12°	916	1374	1832	2290	2748	3206	3664	4122	4580	9160	13740	18320	22900	27480	32060	36640	41220	45800
14°	1104	1656	2208	2760	3312	3864	4416	4968	5520	11040	16560	22080	27600	33120	38640	44160	49680	55200
16°	1306	1959	2612	3265	3918	4571	5224	5877	6530	13060	19590	26120	32650	39180	45710	52240	58770	65300

Example: Find the latent ventilating load due to lowering 187,000 CFH of outside air from 72° DP Temp. to 60° DP Temp.

Solution: Read from Table at 12° DP Temp. drop:

Air Quantity	Load
100,000	45,800
80,000	36,640
7,000	3,206
Total 187,000	85,646 B.t.u./hr.

Or this load may be computed from Table 15 by subtracting the latent heat given in column No. 4 opposite 60° in column No. 1, from the latent heat in column No. 4 opposite 68° in column No. 1, (16.03—12.00 = 4.03) and by multiplying the difference by the pounds of air per hour.

The pounds of air per hour are determined by dividing 10,000 cubic feet per hour by the volume of a pound of air at the inside condition interpolating between columns Nos. 5 and 6, Table 15. At an inside condition of 80° dry bulb and 60° dewpoint, this value is 13.85 cubic feet per lb.

Therefore the pounds of air per hour are

$$\frac{10{,}000}{13.85} = 725.$$

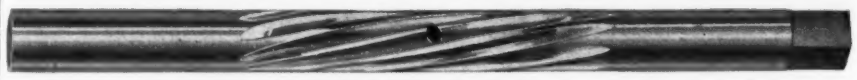
The latent load is 4.03 x 725 = 2920 B.t.u. per hour.

Or the load may be computed by deducting the latent heat per cubic foot of air at the inside condition from the latent heat per cubic foot of air at the outside condition as taken from Table 14, and multiplying

(*Continued on Page 20, Column 1*)

THE BUYER'S GUIDE

PISTON PIN REAMER



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Making Field Load Calculations for Winter Heating Systems

(*Concluded from Page 19, Column 5*) the difference by 10,000. 10,000 x (1.167 —.875) = 2920.

Latent Heat of Occupants

Having estimated the occupancy as described above, the peak occupancy latent load may be obtained by multiplying the peak hour occupancy by the proper latent load per occupant according to the activity of the occupants and the room condition as given by Table 18.

Miscellaneous Latent Heat

The latent load due to various types of restaurant and other equipment, is given in Table 19. The remarks made above pertaining to usage factors, and to the percent of the loads from equipment which will be removed by exhausting through hoods, apply also to latent loads from equipment.

Total Load

The total load is obtained by adding the sensible and latent loads as computed above. In the interests of safety, it frequently is advisable to add some percentage to the final result as a factor of safety.

When the information upon which the computations are based is accurate and dependable, such a factor need not be large, or may be omitted entirely. Ordinarily, if care is exercised in obtaining the information requested by the questionnaire, a safety factor of 5% is ample. In some cases, however, it is impossible to obtain dependable information, so that a greater factor may be desirable.

If inherent control of humidity is desired, the latent and sensible multipliers may now be applied from Table 21, as described in Part 2 of this section.

The Winter Heating Load—Sensible

In making the winter heating load estimate, the same methods should be used in determining the quantity of outside air which will be admitted into the conditioned space as were discussed above under "sensible heat of outside air," except that it may be necessary to consider the effect of higher wind velocities.

In computing the outside air load, or the sensible heating load resulting from outside air, the cubic feet of outside air per hour should be multiplied by the differential between the sensible heat content of a cubic foot of air at the outside and at the inside design conditions as given by Table 22, or the pounds of air per hour should be multiplied by the difference in sensible heat content per pound of air at the outside and inside conditions as taken from Table 15.

The transmission heating load acts in the same way as the transmission cooling load, except that the flow of heat is outward instead of inward, and sun effect is ordinarily ignored as it is relatively small and works for the equipment rather than against it.

The load is computed in the same way, the transmission coefficient of the wall, floor or ceiling being multiplied by the area, and the product being multiplied by the temperature differential between the dry-bulb air temperature inside the conditioned space and the dry-bulb air temperature outside the conditioned space. Tables for easy reading off of the above loads will be included in the completed book AIR CONDITIONING MADE EASY.

The outside air and transmission loads should be added to determine the total heating load. The final result should be increased 15% as a heating-up factor when the project is to be heated intermittently. In addition to this, 5% to 10% should be added if the conditioned space is particularly exposed to prevailing winds, or if the information covering the projects is doubtful.

Latent—(Humidifying)

The moisture content of the outside air in most sections of the United States is frequently so low during the heating season that it may be taken as zero, and it usually is considerably lower than the moisture level desirable for the conditioned space.

Obviously the winter air-conditioning equipment must have ample humidifying capacity to raise the humidity level of the outside air to the desired level for inside comfort.

In order to determine the necessary humidifying capacity, multiply the cubic feet per hour of outside air by the difference in gallons of water per cubic feet of air at the inside and at the outside condition as read from Table 22.

Since the outside moisture content in most localities frequently approaches zero during the heating seascn, humidifying capacity usually may be taken as the cubic foot per hour of outside air times the gallons of water per cubic foot at the inside condition.

Atlanta Dept. Store Now Air Conditioned

ATLANTA—All seven floors of Muse's department store have been air conditioned with Carrier equipment. In a recent newspaper advertisement, the store referred to its seven air-conditioned floors as "seven heavens" for summer shoppers.

Denver Jeweler Features New Cooling System In Advertising

DENVER — One-inch advertisements bearing such heads as "How Nice & Cool!" "Temperature 12 to 15° Cooler," "Why Swelter?" and "Hot Enough?" scattered throughout the newspaper with the largest circulation here, are being used by Frumess, Denver jeweler, to play up its air-conditioned store during the hot summer months.

Copy following each of the heads stresses the fact that the air-conditioned store is 12 to 15° cooler than outside temperature, and emphasizes the comfort and pleasure of shopping in the store. Considerable increase in business has resulted.

Table 21—Inherent Humidity Control Chart

Air-conditioning equipment which is selected upon the basis of this table will keep the humidity within the conditioned space under inherent control.

Directions:

1. Ccmpute the load as described in section titled "Computing the Load."

2. Determine the percent sensible reduction coincidental with maximum latent load by solving the following equation:

Sensible reduction in percent =

[90 × (Transmission + Sunload + Sensible Heat of Outside Air)] ÷ Entire Sensible Load

3. From this table select the *increase* in latent load and the *decrease* in sensible load which accompany the percent sensible reduction determined under Item 2 above.

4. Determine a new latent load by multiplying the computed latent load by the percent increase, and determine a new sensible load by multiplying the computed sensible load by the percent decrease selected under Item 3 above.

5. Determine a new total load and a new latent-to-total load ratio from the new latent and sensible determined under Item 4 above.

6. Make the equipment selection upon the basis of the new total load and the new latent-to-total load ratio determined under Item 5 above.

Upon projects whose inside design dewpoint temperature is 60°, the selection of equipment according to this table will limit the room dewpoint temperature to 63°. This dewpoint will exist only at occasional periods when the sensible load is at minimum, coincidental with maximum latent loads.

At lower design dewpoint temperatures, the maximum dewpoint temperatures will be correspondingly lower.

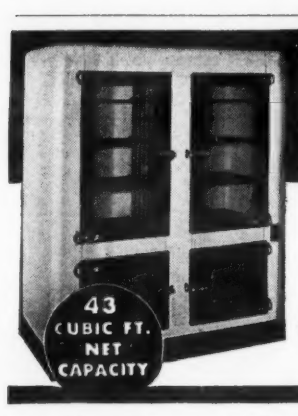
INHERENT HUMIDITY CONTROL TABLE

Per Cent Reduction in Maximum Sensible Load Coincidental with Maximum Latent Load	Multiplier for Computed Loads Sensible	Latent
%	%	%
5	100	100
10	100	100
15	100	100
20	100	100
25	100	100
30	100	100
35	100	100
40	99	105
45	97	113
50	95	120
55	94	129
60	92	137
65	90	147
70	88	156
75	86	166
80	83	176
85	81	186

Table 22—Properties of Winter Air

Dry Bulb	Wet Bulb	Gal. Water Per Cu. Ft. Air	B.t.u./Pound Dry Air (Above 32° F.)	Specific Volume	B.t.u./Cu. Ft. Dry Air (Above 32° F.)
—10	....	.....	—10.05	11.35	— .885
— 8	....	.....	— 9.57	11.40	— .84
— 6	....	.....	— 9.10	11.45	— .795
— 4	....	.....	— 8.62	11.50	— .748
— 2	....	.....	— 8.16	11.55	— .707
0	....	.0000081	— 7.68	11.60	— .662
2	....	.00000895	— 7.20	11.65	— .618
4	....	.00000988	— 6.72	11.70	— .574
6	....	.0000109	— 6.24	11.75	— .531
8	....	.00001205	— 5.76	11.80	— .488
10	....	.00001325	— 5.23	11.86	— .441
12	....	.00001455	— 4.80	11.91	— .402
14	....	.0000161	— 4.32	11.97	— .361
16	....	.0000176	— 3.84	12.02	— .32
18	....	.00001935	— 3.36	12.08	— .278
20	....	.0000212	— 2.88	12.13	— .237
22	....	.0000233	— 2.40	12.19	— .197
24	....	.0000254	— 1.92	12.24	— .157
26	....	.0000279	— 1.44	12.30	— .117
28	....	.0000305	— 0.96	12.35	— .077
30	....	.0000334	— 0.48	12.41	— .0388
32	....	.0000365	0.00	12.47	.0
34	....	.0000393	0.48	12.52	+ .0384
64	54.7	.0000585	7.68	13.34	+ .576
66	56.2	.0000626	8.16	13.40	+ .61
68	57.7	.0000670	8.64	13.46	+ .641
70	59.2	.0000713	9.12	13.52	+ .675
72	60.0	.0000733	9.6	13.58	+ .707
74	60.7	.0000733	10.08	13.63	+ .74
76	61.5	.0000733	10.56	13.66	+ .773

THE BUYER'S GUIDE



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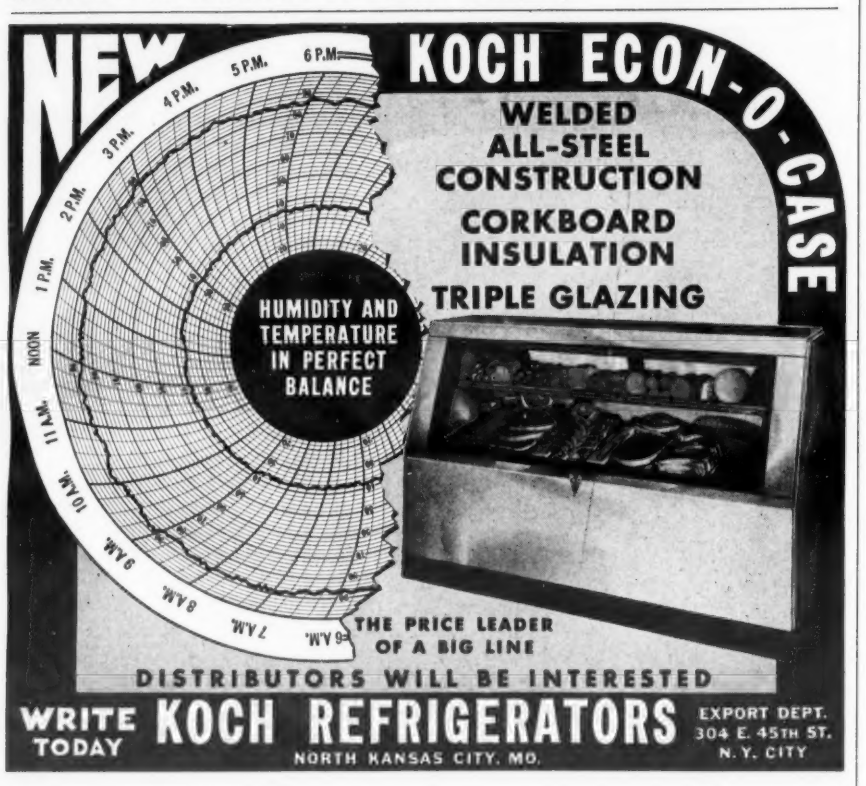

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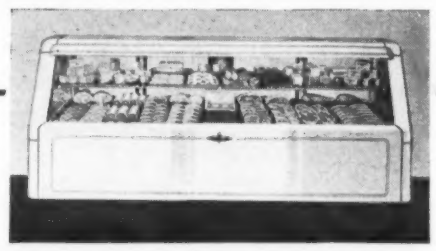

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SERVICE METHODS

Cause of 'Sweating' between Glasses of Display Cases & Methods of Dehydration

James H. Hill
c/o American Consul
Pernambuco, Brazil, S. A.

K. M. Newcum:

Hope you have arrived at the new job and like Detroit. This may seem rather personal, but I feel that I know you.

I read all of your articles, and re-read them from time to time, so that it seems as if they were written "to me" as it were.

Here is a problem I can't figure out.

Why should sweating occur between the glasses of a display case that is cooled by air-conditioned evaporation? The air is not blown on the glass, but rises at both ends of the case and enters through louvers, and is then drawn downward over the coils. The blower-unit and fan is located at the center of the case in the bottom.

The case is of good construction having three plate glasses, set in rubber. The space between each glass was dehydrated before being sealed off, by circulating air through a calcium chloride drier and then through the spaces.

A similar dehydrating process was used after the glasses were finally sealed tightly into place. Following this final drying operation the openings, through which the dry air was circulated between the glasses, were sealed off. JAMES H. HILL

MOISTURE IS PRESENT

Answer: The problem of "sweating between glasses," as it is commonly called, is one that has caused many refrigerator engineers to lose many hours of sleep.

Various and sundry methods have been used in an attempt to prevent the collection of condensed moisture at the coldest spot or place on the *inside* of the glass nearest the refrigerated space.

Some refrigerator manufacturers have special "sealing rooms" that are artificially dried to remove all of the moisture possible from the air before the glasses are finally sealed into place.

Other companies circulate dry air through the spaces after the final sealing, such as you have described. The fact remains that there is moisture present between glasses in refrigerators. It is impracticable to remove it all, either before or after sealing the glasses.

WHY CONDENSATION

The question of why moisture collects or condenses between the glasses in the air-conditioned refrigerated case mentioned in your letter may be answered as follows:

The air between the glasses contains a certain percentage of moisture. Certain spots or areas on the inside glass are chilled by the colder air within the refrigerator.

Moisture-laden air, between the glasses, comes in contact with this colder surface of the glass. The air is chilled to below the dewpoint of the moisture contained in the air. Part of the moisture condenses out of the air and collects on the surface. Result is "sweating between glasses."

BAFFLES MAY HELP

The fact that the case, mentioned in your letter, is cooled by "air-conditioned refrigeration," or to be more in keeping with accepted terminology, is equipped with a "force-draft evaporator unit" would have little effect on the cause of the condition. If temperature of the glass is chilled below the dewpoint of the moisture in contact with the surface of the glass, the moisture will condense out.

It may be possible, in the case you describe, that some of the cold air is "wiping" the glass, as it "spreads out" when released from the cold air flues.

This could be determined by tracing the part of the glass that is sweating. If the sweated part is between the cold air flue and the warm air flue, the cold air should be directed away from the glass by the use of carefully placed baffles.

REMOVING MOISTURE

Should it be that the sweating condition is general, or more noticeable all along the bottom of the glasses, changing the direction of the flow of air will offer little or no assistance.

In any event there is moisture between the glasses of the refrigerator and this excessive moisture should be removed. You mention that the case was dehydrated after the glasses were finally sealed. According to this there should be connections to the space between the glasses to allow for a dehydration at this time.

If the connections are available, air may be slowly circulated through a large calcium chloride drier, and through the space, to remove the moisture.

When performing this drying operation the refrigerator should be warm so the moisture will be in the air and not collected on the glass or on the bottom between the glasses.

To correct a sweating condition in a case that is not equipped with dehydrating connections, any cold air currents directly contacting the glass should first be directed away from it. Then the glasses should be removed, the moisture (water) cleaned out, and all wet surfaces allowed to thoroughly dry.

The glasses must then be reset. This is a job for an experienced refrigerator serviceman, or a good glazier.

Reglazing a case should not be attempted on a damp day. A hot dry day is preferred. Reason for this is obvious.

USING OF DEHYDRATOR

While the glasses are removed one or more dehydrators may be installed between the glasses. Display case dehydrators are filled with calcium chloride or a similar drying agent. Their function is to absorb moisture which will leak into the space after the glasses have been resealed.

Refrigerator dehydrators, like any dehydrator, will absorb moisture from the air if they are exposed. To obtain the best results the dehydrator should remain in a heated oven until the last possible moment before being placed in the case, just before each glass is finally installed and sealed into place.

Mercoid Announces Explosion-Proof Control Line

CHICAGO—Development of explosion-proof automatic pressure, temperature, and electrical contact controls has been announced by the Mercoid Corp.

Housed in each control unit is a Mercoid switch consisting of a glass tube containing sealed contacts of special material and a quantity of mercury to make and break the circuit when tube is tilted.

Types of explosion-proof units include pressure controls ranging up to 2,500 lbs. for use with air, oil, water, steam, ammonia or other chemicals not injurious to brass or steel; temperature controls ranging from minus 30° to plus 450° F., and various transformer relays and lever-arm and float-operating controls.

Specific types of controls for which explosion-proof cases are provided are the "DA" pressure controls with adjustable ranges and differentials for automatic control of heating equipment and other applications in which control of air, oil, or water pressure is necessary; the "848" temperature regulators; the snap-action, direct-action, and three-position type lever-arm controls, and low voltage transformer relays.

Explosion-proof cases for special controls are also manufactured.

Moravec Heads Penn's Moline Office

MOLINE, Ill.—J. G. Moravec, sales engineer of Penn Electric Switch Co., has been placed in charge of the company's newly opened Moline, Ill., office, according to N. E. Jennison, assistant sales manager.

Mr. Moravec was associated with United Power & Light Co., Davenport, Iowa, before joining the Penn organization.

Penn's Moline office, according to Mr. Jennison, will serve western Illinois and Wisconsin, Minnesota, Iowa, Nebraska, and Dakota customers who were handled by the company's main office when Penn headquarters were in Des Moines, Iowa.

Ansul Twin Advertisements Issued in Booklet

MARINETTE, Wis.—The Ansul Chemical Co., manufacturer of sulphur dioxide and methyl chloride refrigerants, has just published a booklet compilation of their Ansul twin advertisements which have appeared regularly in AIR CONDITIONING AND REFRIGERATION NEWS for more than a year.

Paragon Automatic Controls Listed in New Booklet

CHICAGO—Paragon Electric Co., manufacturer of all types of time controls, has issued a new booklet, which really is a condensed catalog of its line of Paragon automatic time controls for use in refrigeration and air-conditioning systems.

Norge Dealer Opens New Service Department

WORCESTER, Mass. — Percy's, Norge dealer, has opened a new service department under the management of Bernard Schultz. A complete stock of parts for all makes of domestic and commercial refrigeration is carried.

Controls Firm Opens New Office in Baltimore

BALTIMORE—Mercoid Corp., Chicago, has opened a new office here at 1035 Cathedral St., which will carry a complete stock of Mercoid automatic controls. John Jex, Jr. is manager.

Imperial Brass Team Beats Alter Nine

CHICAGO — Imperial Brass Mfg. Co.'s softball team defeated the team representing Harry Alter Co. by a score of 13 to 7 in their first encounter. The Alter team has demanded a return engagement.

Imperial officials present at the game included F. McNellis, Sr., president; W. L. Leonard, Jr., sales manager; C. H. Benson, advertising manager; and Mr. Shafer.

Representing the Alter Co. in the rooting section were Irving Alter, president; Don Samuels, purchasing agent; and Miss Adele Becker, assistant to the purchasing agent.

THE BUYER'S GUIDE

TYLER'S WELDED STEEL Cases

● 1937 line offers wide variety and sensational values. 6 big new features and iron-clad guarantee. Only Tyler gives one-piece "welded steel" construction, 100% insulation. Wonderful sales opportunity. Most talked of and fastest selling line on market. WRITE today.

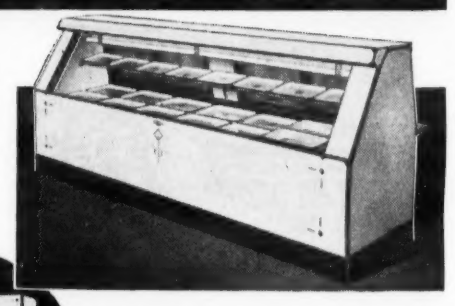
TYLER Sales-Fixture COMPANY
Dept. E, NILES, MICHIGAN

SIX BIG NEW FEATURES

Sherer
Sherer Refrigerated Display Equipment harmonizes with the finest fixtures. The line offers splendid values with big profit possibilities. Write for details about the Sherer Case and Cooler Franchise. Valuable territories still available.
SHERER-GILLETT CO. . . . MARSHALL, MICHIGAN
Display and Storage Equipment for Retail Food Stores

DISTRIBUTORS WANTED

DISTRIBUTORS! Increase your sales and earnings on electrical refrigeration equipment by selling the Percival Line. Percival equipment meets every requirement of the modern food store.



For Mechanical Refrigeration Only

DESIRABLE TERRITORIES still available. Write for details of attractive, profit-making franchise.

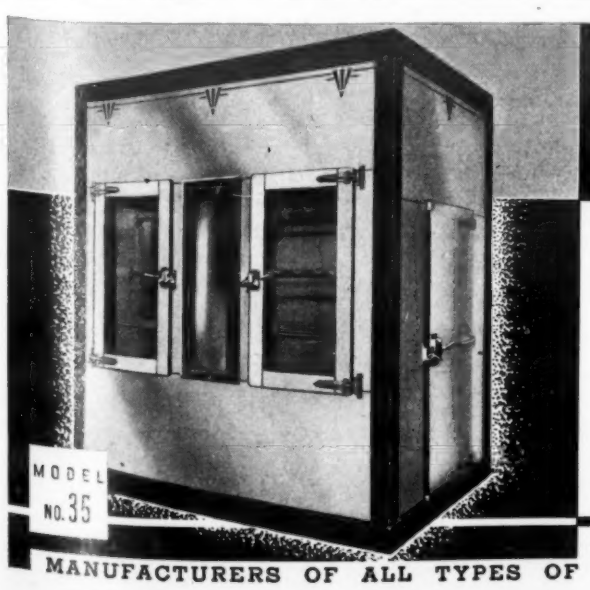
C. L. PERCIVAL COMPANY
DES MOINES . . . . . IOWA
51 YEARS OF SERVICE 1886-1937

KASON
HEAVY DUTY HINGES

The larger KASON HINGES are ruggedly geared for heavy duty. Constructed of Forged-Brass (the hardiest metal construction known to the industry) and equipped with two, case-hardened, ball-bearing washers and an added supporting lug, these hinges have a tremendous reserve of strength—far greater than mere necessity demands.

There is a KASON HINGE for every refrigerator need.
WRITE FOR CATALOG No. 38

KASON HARDWARE CORPORATION
127-137 Wallabout St., Brooklyn, N. Y.



GLOEKLER
Manufacturing Company
ERIE, PENNSYLVANIA
SALES OFFICE: 429 FOURTH AVE., PITTSBURGH, PA.

This PORCELAIN CLAD MARKET REFRIGERATOR is available in a wide range of sizes; either Porcelain or Golden Oak, front and door ends.

The 48" three light glass-sealed service windows give access to a double row of tinned steel meat rails, and two hardwood shelves for the storage of package goods, milk, etc.

Front and door end finished with three coats of white porcelain, fused on 18 gauge special steel; trimmed in black, and equipped with extra heavy cast brass, chrome finished hardware.

Sold thru Distributors only. Write for Folder 35.

MANUFACTURERS OF ALL TYPES OF SPECIAL DESIGNS BUILT TO ORDER COMMERCIAL REFRIGERATORS AND CASES

Bangor Appliance Dealer Moves to New Location

BANGOR, Me.—R. M. Flagg Co., electric refrigeration and appliance dealer, has leased the Parkhurst building at 281 Main St., and will move to that location when remodeling is completed. Present location of the firm is 112 Harlow St.

Page-Williamson, Inc. Opens Kelvin Home in Charlotte, N.C.

CHARLOTTE, N. C. — The first Kelvin Home in Charlotte has been formally opened for inspection at 2918 Hampton Ave. by Page-Williamson, Inc., Kelvinator dealer.

New Kelvinator Dealer In Coral Gables, Fla.

CORAL GABLES, Fla. — Good Housekeeping Stores opened here July 1 as a Kelvinator dealer. G. B. Northrup is owner and manager of the firm.

A. E. Shafer Becomes Manager Of Jackson, Miss. Dealership

JACKSON, Miss.—A. E. Shafer, former service manager, has assumed the management of the Home Appliance company, local dealer in Frigidaire electric refrigerators and Delco-Frigidaire air-conditioning equipment.

Earnings

WESTINGHOUSE

MANSFIELD—Westinghouse Electric & Mfg. Co., for the year ended June 30, reports a net income of $18,493,772, equivalent to $6.93 a common share. This compares with $13,656,170, or $5.13 a share, earned the year before, a gain of 35%.

For the six months ended June 30, net income was $11,331,772, or $4.25 a share, which compares with $7,937,978, or $2.98 a share, earned in the 1936 period. This represents a gain of 43%.

The directors declared a dividend of $1 a common share and the dividend on the preferred. This was the third $1 payment made on the common stock this year.

For the quarter ended June 30, the indicated net income was $5,990,260, which compares with $5,341,512 in the preceding quarter and $4,205,524 in the June quarter of 1936.

Orders for the six months ended June 30 were $142,209,475, which compares with $88,880,060 for the 1936 period. This represents a gain of 60%. For the year, orders totaled $235,850,719, against last year's $147,525,278, also an increase of 60%.

Sales billed for the six months totaled $101,861,631, compared with $77,228,167 in the 1936 period, an increase of 32%.

Unfilled orders on the books on June 30 totaled $83,725,878 for the largest total of unfilled orders since September, 1920.

STEWART-WARNER

CHICAGO—Stewart-Warner Corp., for the six month period ended June 30, reports consolidated net profit, before provision for Federal surtax, of $1,541,920.

This is equivalent to $1.24 a share on the capital stock and is an increase of approximately 50% over net profit for the corresponding period of 1936, which was $1,054,361, or 85 cents per share.

For the three months ended June 30, net profit was $700,663, or 56 cents a share, as compared with $622,034, or 50 cents a share, for the second quarter of 1936.

C. I. T.

NEW YORK CITY—Semi-annual stockholders report issued by the Commercial Investment Trust Corp. shows net earnings of $11,573,865 for the six months ended June 30, as compared with $9,757,837 for the first half of 1936.

Earnings of the National Surety Corp. a subsidiary, amounting to $1,037,067 are included in the combined net for the six-month period.

Total volume of business, amounting to $776,960,975, was the highest for any half-year period in the corporation's history.

After dividends on the preferred stock were deducted, net earnings of $11,370,490 made available dividends of $3.43 per share, on 3,312,585 shares of common stock. This compares with $8,964,819 equal to $3.16 per share on 2,836,923 shares in the first six months of 1936.

No deduction was made for surtax on undistributed profits.

APEX

CLEVELAND—The regular quarterly dividend of $1.75 per share on prior preferred stock of Apex Electrical Mfg. Co. has been declared payable July 1 to stockholders of record as of June 21, according to an announcement by C. G. Frantz, president.

Houston Retailers Sell Record 8,543 Units

HOUSTON, Texas—Reacting to the stimulus of a sales contest with cash awards, local retailers during the first five months of the year sold 8,543 electric refrigerators for installation on lines of Houston Lighting & Power Co., greatest volume of sales in the history of the industry in this territory.

First prize in the contest was won by Hugh Manning, salesman for Ben Duffie, Inc., and second prize went to G. H. Anderson, of Sears, Roebuck & Co.

Four other awards also were won by Sears salesmen.

Refrigerator Sales Drop 3% in Cincinnati

CINCINNATI—Electric refrigerator sales here for the first six months of the year were approximately 3% lower than for the first half of 1936, according to figures submitted to the Cincinnati Electrical Association by members of the refrigeration division.

May sales, according to these figures, were 20% below those of May, 1936, but June sales showed an increase of 10%.

Membership of the association's refrigeration division includes most major wholesalers of refrigeration except Sears, Roebuck & Co.

SUPPLY JOBBERS

Any of the following refrigeration supply jobbers will take your order for a subscription to Air Conditioning and Refrigeration News (one year, $4.00) or for copies of these popular books: The Master Household Refrigeration Service Manual (in 3 parts, $1.00 each part); 1936 Refrigeration and Air Conditioning Specifications (512 pages, plus a 64-page supplement giving specifications data on 1937 household refrigerators, $3.00); The Refrigeration Engineer's Manual (224 pages, price $3.00). Foreign countries, 50¢ extra for each book.

A. E. Borden Co.
145 High St., Boston, Mass.

Refrigeration Supply Co.
100 Washington St., Brookline, Mass.

Westville Electric Co.
89 Goffe St., New Haven, Conn.

Service Supply Co.
241 Water St., Binghamton, N. Y.

Root, Neal & Co.
178 Main St., Buffalo, N. Y.

Sid Harvey, Inc.
236 Main St., Hempstead, L. I., N. Y.

Aetna Supply Co.
407 E. 152nd St., New York, N. Y.

Harry Alter Co.
161 Grand St., New York, N. Y.

Federal Refrigerator Corp.
57 E. 25th St., New York, N. Y.

T. W. Binder Co.
29 S. Orange Ave., Newark, N. J.

Melchior, Armstrong, Dessau Co., Inc.
601 W. North St., Baltimore, Md.

Victor Sales Corp.
2222 Arch St., Philadelphia, Pa.

Wm. M. Orr Co.
1228 Brighton Rd., Pittsburgh, Pa.

Williams & Co.
901 Pennsylvania Ave., N. S., Pittsburgh

Radio Service Co.
50 Hazle St., Wilkes Barre, Pa.

Refrigeration Supply Co.
1647 W. Broad St., Richmond, Va.

M. D. Patterson Co.
119 Courtland St., S. E., Atlanta, Ga.

Williams & Co.
Henry & Dunlap Sts., Cincinnati, Ohio.

Debes & Co.
1249 E. 105th St., Cleveland, Ohio.

Harry Alter Co.
4506 Prospect Ave., Cleveland, Ohio.

Refrigeration Supplies Distributor
2223 Chester St., Cleveland, Ohio.

Williams & Co.
1748 E. 22nd St., Cleveland, Ohio.

Hughes-Peters Electric Co.
178 N. Third St., Columbus, Ohio.

F. H. Langsenkamp Co.
229 E. South St., Indianapolis, Ind.

F. H. Langsenkamp Co.
127 S. St. Joseph St., South Bend, Ind.

W. C. Du Comb
6335 Palmer Ave., East, Detroit, Mich.

J. M. Oberc, Inc.
904 W. Baltimore, Detroit, Mich.

Young Supply Co.
1050 W. Baltimore, Detroit, Mich.

Shand Radio Specialties
203 W. Kearsley St., Flint, Mich.

Refrigeration Specialty Co.
955 N. 26th St., Milwaukee, Wis.

W-M Refrigeration Co.
2468 N. Third St., Milwaukee, Wis.

Airo Supply Co.
2726 N. Ashland, Chicago, Ill.

Automatic Heating & Cooling Supply Co.
647 W. Lake St., Chicago, Ill.

B-Line Refrigerator Parts
8038 S. Racine, Chicago, Ill.

H. W. Blythe Co.
2334 S. Michigan Ave., Chicago, Ill.

Borg Warner Service Parts
2100 Indiana, Chicago, Ill.

H. Channon Co.
133 N. Wacker Dr., Chicago, Ill.

Standard Refrigeration Parts Co.
5101 W. Madison Ave., Chicago, Ill.

Harry Alter Co.
1728 S. Michigan Ave., Chicago, Ill.
5217 W. Madison St., Chicago, Ill.
4611 N. Western Ave., Chicago, Ill.
7821 Stony Island Ave., Chicago, Ill.
2315 Washington, St. Louis, Mo.

Brass & Copper Sales Co.
2817 Laclede Ave., St. Louis, Mo.

The Spangler Co., Inc.
3331 Market St., St. Louis, Mo.

R. E. Thompson Co.
1538 Tower Grove Ave., St. Louis, Mo.

Burstein-Applebee Co.
1012 McGee St., Kansas City, Mo.

The Spangler Co., Inc.
623 St. Charles Ave., New Orleans, La.

Refrigeration & Industrial Supply
422 S. Seventh St., Minneapolis, Minn.

Thermal Service Co.
2490 University Ave., St. Paul, Minn.

Republic Electric Co.
116 E. First St., Davenport, Iowa.

C. L. Percival Co.
11th & Cherry Sts., Des Moines, Iowa.

Refrigeration Supply Co.
359 Wesley Way, Sioux City, Iowa.

United Supply Co.
207 N. 16th St., Omaha, Nebr.

Ruegg Refrigeration Supply Co.
245 S. 11th St., Lincoln, Nebr.

Macklanburg Brass & Copper Products Co.
111 N. W. 23rd St., Oklahoma City, Okla.

Beckett Electric Co.
2118 Griffin St., Dallas, Texas.

Refrigeration Supply Co.
2019 Commerce St., Dallas, Texas.

Westbrook Carburetor Electrical Co.
301 S. Main St., San Antonio, Texas.

Refrigerating & Power Specialties Co.
1007 E. Burnside Ave., Portland, Ore.

Refrigeration Service, Inc.
3109 Beverly Blvd., Los Angeles, Calif.

Refrigeration Supplies Distributor
222 N. Vermont Ave., Los Angeles, Calif.

Refrigeration Parts Exchange
3214 Beverly Blvd., Los Angeles, Calif.

Hinshaw Supply Co.
1319 J St., Sacramento, Calif.

California Refrigerator Co.
1077 Mission St., San Francisco, Calif.

Davis Automatic Controls Co.
145 Wellington St., W., Toronto, Ont., Can.

Modern Household Appliances, Ltd.
1106 Beaver Hall Hill, Montreal, Can.

Suministros Frigorificos, Ltda.
Maria Diaz de Haro 48-50, Bilbao, Spain.

F. C. Lovelock, Ltd.
16-20 Young St.
Sydney, N.S.W., Australia

J. Russell Hancock, Ltd.
49 Courtenay Place
Wellington, New Zealand.

Refrigeration Supplies, Ltd.
49 Courtenay Place
Wellington, New Zealand.
New Zealand Express Bldg.
Fort St., Auckland, New Zealand.

Ahmed A. Fazelbhoy
New Queen's Road, Bombay, India.
55 Canning St., Calcutta, India.

THE BUYER'S GUIDE

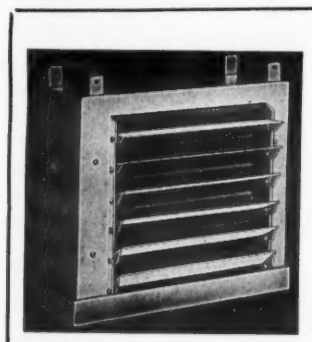
SINCE 1899

LEADING WITH QUALITY

The quickest selling case on the market—made possible by its many exclusive features and a complete line. To obtain a large and profitable commercial volume

WRITE FOR DETAILS

FOGEL REFRIGERATOR CO., PHILA., PA.



UNIT BLOWERS
Pipe Coils
Air-Conditioning Coils

FIN COILS
5/8"—3/4"—1"
Steel or Copper

REMPE COMPANY
340 N. Sacramento Blvd., Chicago, Illinois

REMPE

Model No. 500-A

"CHIEFTAIN"
QUALITY-BUILT COMPRESSORS and CONDENSING UNITS

All bearings diamond bored. Positive lubrication of parts by newly developed process plus forced feed lubrication in all models.

Sizes 1/6, 1/5, 1/4, 1/3 h.p.
Write for prices

TECUMSEH PRODUCTS CO.
Tecumseh, Mich.

OFFICES

New York
480 Lexington Ave.

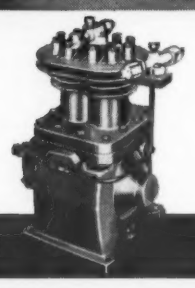
Chicago
Room 2258
La Salle-Wacker Building

Detroit Export Department
1002 Palms Bldg.

Los Angeles
122 Mariposa St.

St. Louis
577 Arcade Bldg.

REPLACEMENT COMPRESSORS for All Standard ICE CREAM CABINETS

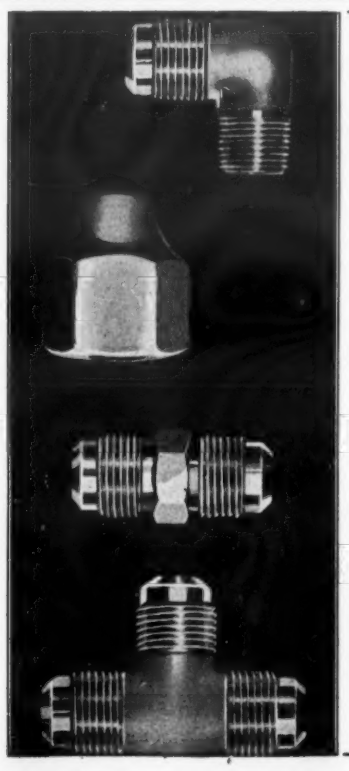


Bare Compressors and complete units (with or without motor and controls) especially adapted to ice cream cabinet installation and for replacement on all standard makes of flooded type or dry expansion systems.

Write for new catalog.

M&E EST. 1866

MERCHANT & EVANS COMPANY
Philadelphia, Pa., U. S. A., Plant at Lancaster, Pa.



Seepage-Proof FITTINGS

"Built Right to Stay Tight"

Every style and size of forged flared tube fitting for the refrigeration industry is available from standard stock at Commonwealth.

Thousands of semi-standard patterns enable us to quickly furnish any desired variation in pipe and tube ends.

Special fittings made to order.

Commonwealth fittings are correctly designed, carefully machined, and tube seats are protected in shipping.

25 years of service to the industry.

COMMONWEALTH BRASS CORPORATION
Commonwealth at Grand Trunk R. R
DETROIT, MICH.

DICELER 4 CYLINDER UNITS

3/4 and 1 H.P.
Air-Cooled Unit

Modern Compressor Units for Modern Refrigeration and Air-Conditioning applications are found in Diceler Four Cylinder Units. A compressor for every refrigeration need may be selected from the complete line of models from ¼ hp. to 30 hp.

A study of DICELER features outlining the exacting methods of construction and the high grade material used, will explain why DICELER has found favor in the eyes of experienced engineers. Write for catalogue.

DEISSLER MACHINE COMPANY
Greenville, Pa.
Over a sixth of a century in electric refrigeration

Kresge, Daffron Head Districts for Rock Wool

BALTIMORE—Eugene E. Kresge has been appointed district sales representative for the Rock Wool Insulation division of The Standard Lime and Stone Co. in the Illinois and Wisconsin territory, according to an announcement made recently by Oliver P. Harris, division sales manager.

Appointment of Joseph M. Daffron as district sales representative in the Southwestern territory also was announced by Mr. Harris.

C. B. Ayres Appointed Norge Dealer in Hamilton, Ohio

HAMILTON, Ohio — Appointment of C. B. Ayres as Norge dealer in this city was announced recently by George Schumacher, local branch manager of Harten & Knodel Distributing Co., Dayton Norge distributor.

Norge Sales Up 100% in Northern New Jersey

NEWARK—Sales of Norge products in the northern New Jersey territory for the first six months of this year were approximately 100% greater than those for the period in 1936, reports B. J. Oppenheim, president of the B & O Radio, Inc., Norge distributor here.

July sales are approximately three times greater this year than last, according to Oppenheim.

Goodwyne Manages Dept. For Dannenberg's

MACON, Ga.—George S. Goodwyne has been appointed manager of the refrigerator and furniture departments at Dannenberg's. Norge refrigerators and other electrical appliances are handled together with Emerson and Zenith radios.

Linwood Smith and Jack Butts will assist Mr. Goodwyne.

New York, Pennsylvania & Illinois Lead in Six Month State Totals

States and Territories	Quantity Household Low Sides
Alabama	18,151
Arizona	5,409
Arkansas	9,796
California	97,993
Colorado	10,584
Connecticut	29,025
Delaware	3,413
Dist. of Columbia	11,536
Florida	16,513
Georgia	29,660
Idaho	6,362
Illinois	127,783
Indiana	45,923
Iowa	25,678
Kansas	19,161
Kentucky	22,136
Louisiana	15,864
Maine	5,944
Maryland	18,974
Massachusetts	62,500
Michigan	83,739
Minnesota	28,227
Mississippi	8,813
Missouri	47,978
Montana	6,145
Nebraska	12,056
Nevada	2,025
New Hampshire	4,685
New Jersey	61,983
New Mexico	3,392
New York	169,175
North Carolina	36,729
North Dakota	2,873
Ohio	117,668
Oklahoma	16,494
Oregon	11,830
Pennsylvania	155,367
Rhode Island	8,309
South Carolina	17,270
South Dakota	3,479
Tennessee	27,023
Texas	62,349
Utah	8,139
Vermont	4,074
Virginia	25,366
Washington	21,994
West Virginia	20,764
Wisconsin	33,847
Wyoming	2,251
Total United States	**1,586,449**
Canada	24,123
Other Foreign (Including U. S. Possessions)	100,118
Total for World	**1,710,690**

New York's 29,537 Heads June Sales by States, Penna. Second

States and Territories	Quantity Household Low Sides
Alabama	3,125
Arizona	542
Arkansas	1,248
California	14,174
Colorado	1,398
Connecticut	3,914
Delaware	712
Dist. of Columbia	2,011
Florida	2,692
Georgia	4,775
Idaho	1,046
Illinois	20,289
Indiana	7,644
Iowa	3,565
Kansas	2,235
Kentucky	4,444
Louisiana	2,210
Maine	985
Maryland	3,179
Massachusetts	7,302
Michigan	14,196
Minnesota	3,266
Mississippi	1,048
Missouri	6,854
Montana	593
Nebraska	1,545
Nevada	267
New Hampshire	929
New Jersey	10,730
New Mexico	379
New York	29,537
North Carolina	5,476
North Dakota	288
Ohio	19,699
Oklahoma	2,330
Oregon	2,103
Pennsylvania	27,237
Rhode Island	914
South Carolina	2,686
South Dakota	280
Tennessee	3,588
Texas	7,711
Utah	1,291
Vermont	377
Virginia	4,222
Washington	3,960
West Virginia	3,916
Wisconsin	5,545
Wyoming	285
Total United States	**249,042**
Canada	3,506
Other Foreign (Including U. S. Possessions)	13,681
Total for World	**266,229**

Bruno-New York, Inc. to Install 104 Fairbanks-Morse Units

NEW YORK CITY—Bruno-New York, Inc. has been awarded the contract for 104 Fairbanks-Morse refrigerators of 5 and 6-cu. ft. capacity to be installed in an entire city block of 13 apartment houses owned by Carnegie Estates, Inc. and located on Hunts Point Ave. in the Bronx.

Harry M. Gross New Graybar Merchandising Manager

NEW YORK CITY—Harry M. Gross has been appointed merchandising manager of Graybar Electric Co. here.

Chambers & Horton Appliance Co. Becomes New G-E Dealer

DETROIT — Chambers & Horton Appliance Co. has opened as a General Electric refrigerator dealer at 7517 McNichols Road here. Forrest R. Chambers and Vernon C. Horton are partners in the firm.

Detroit Grunow Distributor Takes on Conlon Washers

DETROIT—Specialties Distributing Co., Grunow distributor, has taken on distribution of the Conlon line of electric washers and ironers throughout the 12 counties which it covers, reports Leonard Turnbull, president.

CLASSIFIED ADVERTISING

RATES: Fifty words or less, one insertion, $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Air Conditioning and Refrigeration News, 5229 Cass Ave., Detroit, Mich.

POSITIONS AVAILABLE

OPENING FOR practical man capable of teaching one or more of the following subjects: Domestic repairs and overhauling, commercial installation and service, also air conditioning; for afternoon or evening sessions, private technical school in New York. Write experience, Box 963, Air Conditioning and Refrigeration News.

POSITIONS WANTED

AIR CONDITIONING and refrigeration engineer, 13 years' experience, including design and installation of industrial, residence, and comfort conditioning systems and equipment, including fans; air washers; heat transfer surface; unit conditioners and heaters; fractional and small integral horsepower compressors both open and hermetic. Acquainted with sales methods. Graduate ME 1924. Box 953. Air Conditioning and Refrigeration News.

DISTRIBUTOR or Manufacturer: Are you in need of a man, college trained, experienced as a salesman, supervisor, sales manager, in commercial refrigeration, comfort cooling, display and store equipment? Experienced in sales promotion, advertising, estimating, and the hiring and training of salesmen. Will consider any location with financially sound organization. Box 954, Air Conditioning and Refrigeration News.

MAN, 32 years of age, graduate mechanical engineer specialized in refrigeration. Also specialized in refrigeration and lubrication, Masters Degree. Eleven years' experience with large manufacturer in research, production, and all phases of design covering small household hermetically sealed to large commercial compressors. At present employed but anxious to make new connection. Married. Protestant. Owns home but will go anywhere. Box 957, Air Conditioning and Refrigeration News.

COMMERCIAL SALES manager. Thorough knowledge of commercial refrigeration in all its branches. Ten years experience with large organization. Splendid sales record. Would like to hear from distributor needing reorganization. Knowledge of Air Conditioning. Box 960, Air Conditioning and Refrigeration News.

AIR CONDITIONING and refrigeration engineer with sales and managerial experience. Eleven years experience in designing, selling and installing industrial, commercial and residential systems. Age 34, married, willing to move to any location with financially sound organization. Box 961, Air Conditioning and Refrigeration News.

SALES DIRECTOR or general manager. 15 years experience refrigeration industry as factory and sales executive, national sales builder. Mechanical engineer, well versed in air conditioning and commercial applications. Now, and for past five years, connected with one of largest corporations in industry. Will make change to substantial medium sized concern. Right connections primary consideration. Box 962, Air Conditioning and Refrigeration News.

FRANCHISE WANTED

EXCLUSIVE DISTRIBUTOR of commercial comfort cooling and industrial refrigeration, for Carrier Corporation, in Detroit area, wants allied lines such as unit heaters, etc., for winter sales. Can pay cash and finance own sales. Must be reliable established concerns. Box 959, Air Conditioning and Refrigeration News.

FRANCHISES AVAILABLE

DISTRIBUTORS WANTED for newly developed, self-contained Midget display refrigerator. All nationally advertised parts including Copeland twin-cylinder compressor. Well insulated; porcelain exterior and interior; three shelves. Size 36" wide, 4'4" high, 28" deep. Easy to sell wherever food is purveyed. Only case listed for less than $300. Good discount to distributors. Write for literature. CONTINENTAL FOOD STORES EQUIPMENT CORPN., 2697 Third Ave., Bronx, N. Y.

BUSINESS OPPORTUNITY

FOR SALE—Established commercial refrigeration business. North Carolina town of 100,000 population. Good franchises. established service business. Doing approximately $50,000 yearly. Will sell complete or part interest. Includes real estate. Owner has other interests. Box 952, Air Conditioning and Refrigeration News.

REFRIGERATION SALES AND SERVICE business for sale. Eight years' continuous sales and service. A splendid opportunity for someone to make their home in Dallas, Texas. Will stand investigation. Box 958, Air Conditioning and Refrigeration News.

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REPAIR SERVICE

DOMESTIC REFRIGERATION controls repaired. Ranco pencil types, $1.75. General Electric, Cutler-Hammer, Tag, Penn, Ranco box types, $2.00. Bishop Babcock, Majestic, Penn magnetic switches, $2.50. Each control individually calibrated to factory specifications. UNITED SPEEDOMETER REPAIR CO., INC., 436 West 57th St., New York City.

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HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

THE BUYER'S GUIDE

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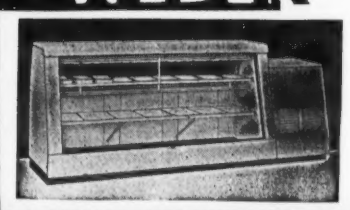

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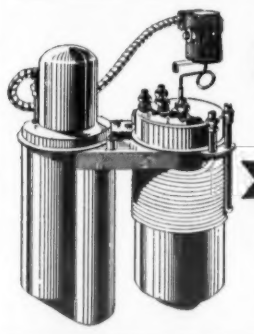

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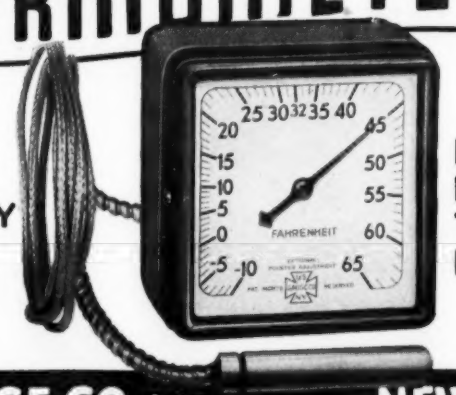

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